

UNITED STATES COURT OF APPEALS
FOR THE FEDERAL CIRCUIT

XEROX CORP.,
Patent Owner/Appellant

Appeal No. 2023-1913

v.

X CORP.,
Petitioner/Appellee

Proceeding No.: IPR2021-01398

NOTICE FORWARDING CERTIFIED LIST

A Notice of Appeal to the United States Court of Appeals for the Federal Circuit was timely filed May 3, 2023, in the United States Patent and Trademark Office in connection with the above identified *Inter Partes Review* proceeding. Pursuant to 35 U.S.C. § 143, a Certified List is this day being forwarded to the Federal Circuit.

Respectfully submitted,

Date: June 28, 2023

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Under Secretary of Commerce for Intellectual Property and
Director of the United States Patent and Trademark Office

CERTIFICATE OF SERVICE

The undersigned hereby certifies that a true and correct copy of the foregoing NOTICE FORWARDING CERTIFIED LIST has been served, via electronic mail, on counsel for Appellant and Appellee this 28th day of June, 2023, as follows:

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**U.S. DEPARTMENT OF COMMERCE
United States Patent and Trademark Office**

June 28, 2023

(Date)

THIS IS TO CERTIFY that the attached document is a list of the papers that comprise the record before the Patent Trial and Appeal Board (PTAB) for the *Inter Partes Review* proceeding identified below.

**TWITTER, INC.,
Petitioner,**

v.

**PALO ALTO RESEARCH CENTER LLC,
Patent Owner.**

**Case: IPR2021-01398
Patent No. 7,043,475 B2**
By authority of the

**DIRECTOR OF THE UNITED STATES
PATENT AND TRADEMARK OFFICE**

Macia L. Fletcher

Certifying Officer



Prosecution History ~ IPR2021-01398

Date	Document
8/14/2021	Petition for Inter Partes Review
8/14/2021	Petitioner's Motion to Waive Word Count
8/14/2021	Petitioner's Power of Attorney and Designation of Lead and Back-Up Counsel
9/7/2021	Motion for Pro Hac Vice Admission - Easley
9/7/2021	Patent Owner's Power of Attorney
9/7/2021	Patent Owner's Mandatory Notices
9/17/2021	Notice of Filing Date Accorded to Petition and Time for Filing Patent Owner's Preliminary Response
9/20/2021	Corrected Notice of Filing Date Accorded to Petition and Time for Filing Patent Owner's Preliminary Response
12/17/2021	Patent Owner's Preliminary Response
1/10/2022	Order - Pro Hac Vice Admission - Easley
3/15/2022	Scheduling Order
3/15/2022	Decision - Institution of Inter Partes Review
3/29/2022	Petitioner's Objections to Evidence
4/12/2022	Notice of Deposition - Turnbull, Ph.D.
5/20/2022	Unopposed Motion for Pro Hac Vice Admission - Wu
6/8/2022	Patent Owner's Response
6/9/2022	Order - Pro Hac Vice Admission - Wu
6/15/2022	Petitioner's Objections to Evidence
7/27/2022	Notice of Deposition - Martin, Ph.D.
8/23/2022	Joint Stipulation Modifying Scheduling Order
9/2/2022	Petitioner's Reply to Patent Owner's Response
9/20/2022	Notice of Deposition - Turnbull, Ph.D.
10/13/2022	Patent Owner's Sur-Reply to Petitioner's Reply
10/21/2022	Order - Patent Owner's Request to File a Motion for Discovery
10/25/2022	Petitioner's Supplemental Mandatory Notice
10/27/2022	Patent Owner's Request for Discovery
10/31/2022	Patent Owner's Request for Oral Argument
10/31/2022	Petitioner's Request for Oral Hearing
11/3/2022	Petitioner's Opposition to Patent Owner's Request for Discovery
11/8/2022	Patent Owner's Reply to Petitioner's Opposition to Patent Owner's Request for Discovery
11/17/2022	Order - Setting Oral Argument
11/18/2022	Order - Patent Owner's Request for Discovery
12/2/2022	Petitioner's Additional Power of Attorney and Confirmation of Lead Counsel
12/9/2022	Patent Owner's Current List of Exhibits
12/12/2022	Petitioner's Objections to Patent Owner's Demonstratives
12/12/2022	Petitioner's Exhibit List
12/12/2022	Petitioner's Supplemental Mandatory Notice
1/12/2023	Patent Owner's Amended Power of Attorney
1/12/2023	Patent Owner's Amended Mandatory Notices

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Date	Document
2/9/2023	Patent Owner's Unopposed Motion for Withdrawal and Substitution of Lead Counsel
2/10/2023	Oral Hearing Transcript
2/16/2023	Patent Owner's Second Amended Power of Attorney
2/16/2023	Patent Owner's Second Amended Mandatory Notices
2/16/2023	Order - Patent Owner's Motion to Withdraw and Substitute Counsel
3/13/2023	Final Written Decision
3/30/2023	Petitioner's Supplemental Mandatory Notice
4/25/2023	Patent Owner's Third Amended Power of Attorney
4/25/2023	Patent Owner's Third Amended Mandatory Notice
5/25/2023	Petitioner's Motion to Withdraw Current Counsel and Substitute New Counsel
5/25/2023	Petitioner's Power of Attorney
5/25/2023	Petitioner's Updated Mandatory Notices

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

TWITTER, INC.,
Petitioner,

v.

PALO ALTO RESEARCH CENTER LLC.,
Patent Owner.

IPR2021-01398
Patent 7,043,475 B2

Before KARL D. EASTHOM, SHEILA F. McSHANE, and
CHRISTOPHER L. OGDEN, *Administrative Patent Judges*.

EASTHOM, *Administrative Patent Judge*.

JUDGMENT
Final Written Decision
Determining All Challenged Claims Unpatentable
35 U.S.C. § 318(a)

I. INTRODUCTION

Twitter, Inc. (“Petitioner”) filed a Petition (Paper 1, “Pet.”); for *inter partes* review of claims 1–18 of U.S. Patent No. 7,043,475 B2 (Ex. 1001, the “’475 patent”), along with the Declaration of Dr. Don Turnbull (Ex. 1003). Palo Alto Research Center LLC, (“PARC” or “Patent Owner”) (formerly Palo Alto Research Center Inc. until recently (Paper 39)), filed a Preliminary Response (Paper 10).

After the Institution Decision (Paper 12, “Inst. Dec.”), Patent Owner filed a Response (Paper 17, “PO Resp.”) and a Declaration of Dr. David Martin (Ex. 2006); Petitioner filed a Reply (Paper 22) and a Reply Declaration of Dr. Don Turnbull (Ex. 1033); and Patent Owner filed a Sur-reply (Paper 24). Thereafter, the parties presented oral arguments via a video hearing, and a transcript of the hearing is in the record. Paper 42 (“Tr.”). For the reasons set forth in this Final Written Decision pursuant to 35 U.S.C. § 318(a), we determine that Petitioner demonstrates by a preponderance of evidence that the challenged claims are unpatentable.

A. Related Matters and Real Parties in Interest

Each party identifies itself as the real party in interest. Pet. 2; Paper 4, 2; Paper 39, 1 (Patent Owner notifying the Board of its change from Palo Alto Research Center Inc. to Palo Alto Research Center LLC and identifying itself as the real party in interest). Patent Owner also states that PARC is a wholly owned subsidiary of Xerox Corp., which is a wholly owned subsidiary of Xerox Holdings Corp. Paper 39, 1.

The parties indicate this Petition relates to the following *inter partes* reviews of the following patents: the ’475 patent in *Facebook, Inc. v. Palo Alto Research Center Inc.*, IPR2021-01264, Paper 37 (final written decision

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holding claims 1–3, 5, 7, 10–12, 15, and 16 of the ’475 patent unpatentable) (PTAB Jan. 23, 2023) (the “Facebook FWD”) (*see* Prelim. Resp. 3); U.S. Patent No. 8,489,599 in *Facebook, Inc. v. Palo Alto Research Center LLC*, IPR2021-01294 (Pet. 8); U.S. Patent No. 8,489,599 in *Twitter, Inc. v. Palo Alto Research Center LLC*, IPR2021-01458 (Prelim. Resp. 3); U.S. Patent No. 8,489,599 in *Twitter, Inc. v. Palo Alto Research Center LLC*, IPR2021-01459 (*id.*); and U.S. Patent No. 9,208,439 in *Twitter, Inc. v. Palo Alto Research Center LLC*, IPR2021-01430 (*id.*).

The parties also indicate this Petition relates to the following district court litigations: *Palo Alto Research Center Inc. v. Twitter, Inc.*, No. 2:20-cv-10754-AB-MRW (C.D. Cal.); *Palo Alto Research Center Inc. v. Facebook, Inc.*, Case No: 2:20-cv-10753-AB-MRW (C.D. Cal.). Pet. 8.; Prelim. Resp. 2.

B. The ’475 Patent

The ’475 patent describes creating user profiles for users who visit web pages and classifying such users via clustering techniques. *See* Ex. 1001, code (57), Fig. 3. The system classifies “user types based on . . . multiple modes of information” collected as a user visits different web sites along a user path. *See id.* at 1:53–54. The system defines a plurality of user paths based on a collection of content portions of web sites that users visit. *Id.* at 1:60–67, 4:48–6:22.

The technique involves combining information from web pages, for example in the form of “feature vector[s],” which include “URL feature vector[s],” “proximal cue vectors,” “content feature vectors,” and other vectors “for each document or web page on the user path.” *See id.* at 6:4–20. Links and images on web pages “typically contain a uniform resource

locator (URL) which provides the ‘address’ of the content portion to be connected to via the Internet.” *See id.* at 3:32–35.

The system combines and weights the different vectors or information into a “multi-modal vector,” which represents a “user profile.” Ex. 1001, 6:4–11. “The multi-modal vector allows different types of information representing the document collection to be combined and operated upon using a unified representation.” *Id.* at 6:20–23.

The “content portions [that a user visits] may be documents, web pages and so forth.” Ex. 1001, 3:6–7. “In various exemplary embodiments, a content feature vector reflects the content of the words contained by each document or web page in the path.” *Id.* at 8:60–63.

Proximal cues include “[p]roximal terms” on a web page that “represent information cues that convey information to the simulated user” who visits the page. *See* Ex. 1001, 4:16–18. “For example, a text 202 associated with a link 204 *may provide* proximal cues as to the nature of the linked information.” *Id.* at 3:43–45 (emphasis added); *see also infra* Section II.B (Claim Construction for proximal information). As another example, in the following exemplary link on a web page, “<http://www.xerox.com/products/support/index.html>,” “the words http, www, xerox, com, products, support and index are considered as proximal cue words for” that link. *Id.* at 3:55–59; *see also id.* at 8:31–32 (“In various exemplary embodiments, proximal cue words include for example, the text of the link structure.”). The specification indicates proximal information is broad: “It will be apparent that *any feature* of the proximal document or web page may be used to provide proximal cue words in the practice of this invention.” *Id.* at 8:38–41 (emphasis added).

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C. Illustrative Claim

Illustrative independent claim 10 follows (with bracketed letters added to limitations for reference purposes):

10. [10.pre] A computer system to cluster user sessions using multi-modal information and proximal information, comprising:

[10.1] a user path determining circuit that selects a plurality of user paths in a collection of content portions;

[10.2] a multi-modal information determining circuit that determines multi-modal information for content portions associated with the user path;

[10.3] a proximal information determining circuit that determines proximal information for content portions associated with the user path;

[10.4] a similarity determining circuit that combines the multi-modal information for content portions and the proximal information for content portions associated with the user path to form a user profile having a unified representation; and

[10.5] a cluster and similarity measure determining circuit that clusters multi-modal information and proximal information of user profiles based on similarity.

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D. Asserted Grounds of Unpatentability

Petitioner asserts that claims 1–18 are unpatentable based on the following grounds:

Claim(s) Challenged	35 U.S.C §	Reference(s)/Basis
1–18	103(a) ¹	Chen ² , Pitkow ³ , Chi ⁴ , Heer ⁵
10–18	103(a)	Chen, Pitkow, Chi, Heer, Cooke ⁶
1–7, 9–16, 18	103(a)	Chen, Pitkow
1–7, 9–16, 18	103(a)	Chen, Pitkow, Chi
1–18	103(a)	Chen, Pitkow, Heer
10–16, 18	103(a)	Chen, Pitkow, Cooke
10–16, 18	103(a)	Chen, Pitkow, Chi, Cooke
10–18	103(a)	Chen, Pitkow, Heer, Cooke

Pet. 9.

¹ The Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011) (effective March 16, 2013) (“AIA”), amended 35 U.S.C. § 103. Because the ’475 patent’s effective filing date precedes the effective date of the applicable AIA amendment, the pre-AIA version of § 103 applies.

² Chen et al., European Patent App. 1 024 437 A2, filed Jan. 24, 2000, published Feb. 24, 2000. Ex. 1004.

³ Pitkow et al., Mining Longest Repeating Subsequences to Predict World Wide Web Surfing, Proceedings of USITS’ 99: The 2nd USENIX Symposium on Internet Technologies & Systems, Boulder, Colorado, USA, (October 11–14, 1999). Ex. 1005.

⁴ Chi et al., Using Information Scent to Model User Information Needs and Actions on the Web, SIGCHI’01, Vol. No. 3, Issue No. 1, Seattle, Washington, USA. (March 31–April 4, 2001). Ex. 1006.

⁵ Heer et al., Identification of Web User Traffic Composition Using Multi-Modal Clustering and Information Scent, Xerox Palo Alto Research Center, Palo Alto, California (2001). Ex. 1007.

⁶ Cooke et al., U.S. Patent No. 5,966,534, filed June 27, 1997, issued Oct. 12, 1999. Ex. 1024.

II. ANALYSIS

A. Level of Ordinary Skill in the Art

Relying on the testimony of Dr. Turnbull, Petitioner proposes that a person of ordinary skill in the art at the time of the '475 patent (December 2002) “would at minimum have a bachelor’s in software, computer, or electrical engineering or computer science with at least two years’ experience in software development, including with respect to web data analysis, or the equivalent.” Pet. 11 (citing Ex. 1003 ¶ 24). Patent Owner does not dispute this proposed level. *See* PO Resp. 30 (“For the purposes of this proceeding, PARC and its expert have applied this level of skill in the art.”).

Various factors in determining the level of ordinary skill in the art include the “type of problems encountered in the art; prior art solutions to those problems; rapidity with which innovations are made; sophistication of the technology; and educational level of active workers in the field.” *In re GPAC Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995) (citation omitted). The prior art of record also reflects the level of ordinary skill in the art. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001). We adopt the assessment offered by Petitioner, as it is consistent with the '475 patent and the asserted prior art.

B. Claim Construction

In *inter partes* reviews, the Board construes claims using the same claim construction standard employed in a civil action under 35 U.S.C. § 282(b). *See* 37 C.F.R. § 42.100(b) (2021). Under the principles set forth by our reviewing court, the “words of a claim ‘are generally given their ordinary and customary meaning,’” as would be understood by a person of

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ordinary skill in the art in question at the time of the invention. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc) (quoting *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996)). “In determining the meaning of the disputed claim limitation, we look principally to the intrinsic evidence of record, examining the claim language itself, the written description, and the prosecution history, if in evidence.” *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 469 F.3d 1005, 1014 (Fed. Cir. 2006) (citing *Phillips*, 415 F.3d at 1312–17).

The Petition construes the claim terms according to *Phillips*, “under which terms are presumed to have their ordinary and customary meaning as understood by” a person of ordinary skill in the art. Pet. 10. In its Response, Patent Owner contends that two terms are in controversy, “proximal information,” and “multi-modal information.” PO Resp. 34–35. The challenged claims each recite these features. The construction of these terms in claim 10 applies to all of the claims.

1. Proximal Information

Independent claim 1 recites “determining proximal information for content portions associated with the user path.” The only other independent claim, claim 10, similarly recites “a proximal information determining circuit that determines proximal information for content portions associated with the user path.” The parties present materially similar arguments and evidence with respect to the claim construction of these phrases as the parties did in the Facebook FWD (IPR2021-01264). *See supra* Section I.A (Related Matters). In that case, the Board determined that “determining proximal information for content portions associated with the user path,” means “finding words in text near or within a link within content portions

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associated with the user path.” Facebook FWD 15. We arrive at the same claim construction here for similar reasons after considering the full record.

The parties agree that “proximal cue information” and “proximal information” are synonymous. Reply 3 n.3; PO Resp. 44. The record supports this agreement. *See, e.g.*, Ex. 1001, 3:41–43, 4:45–46.

Patent Owner contends that “proximal information” is “information near or derived from a link that characterizes the content accessible through the link in association with that link.” PO Resp. 38 (citing Ex. 2006 ¶¶ 110, 121–133). Patent Owner also argues that “‘proximal information’ is distinct from the claimed ‘multi-modal information’ and requires not just URL or hyperlink information (as Petitioner and its expert suggest).” *Id.* As Patent Owner argues, the challenged claims recite two distinct terms, “proximal information” and “multi-modal information.” *See id.* at 38, 43 (“‘proximal information’ and ‘multi-modal information’ are distinct”); Reply 1–8.

Patent Owner also quotes Dr. Martin as testifying that “it is easy to understand . . . [that] proximal information [is] a . . . form of multi-modal information in which the new proximal information has been incorporated.” PO Resp. 43 (quoting Ex. 2006 ¶ 123). In any event, based on the claim recitals, as Patent Owner argues, the challenged claims require both “proximal information” and “multi-modal information,” two distinct claim limitations.

Patent Owner also argues that “determining proximal information” requires storage of the proximal information. PO Resp. 45. Petitioner contends that the ’475 patent describes two types of “proximal information”: “(1) text near/surrounding/adjacent to a link (outlink), and (2) text extracted from a link by breaking the URL into words (called ‘tokenization’).” Reply

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2. According to Petitioner, it is not necessary on this record to construe “proximal information” beyond “*confirming these are two forms of it.*” *Id.*

Based on the discussion below, we agree that the ’475 patent defines the two forms of “proximal information” identified by Petitioner. The Board summarized these two forms of information as “text near or within a link,” which appears in the Board’s claim construction in the Facebook FWD. *See* Facebook FWD 15 (“determining proximal information for content portions associated with the user path,” as meaning “finding words in text near or within a link within content portions associated with the user path”).

Petitioner breaks Patent Owner’s proposed claim construction of “proximal information”—that is, “information near or derived from a link that characterizes the content accessible through the link in association with that link,”—into three separate portions, namely information “[a] *that characterizes the content accessible through the link in [b] association with that link* and [c] *that the information be near or derived from a link.*” Reply 4 (internal quotations omitted). Petitioner does not dispute that proximal information is “[c] information . . . near or derived from a link.” *See id.* (quoting PO Resp. 38). However, Petitioner asserts that Patent Owner

identifies no intrinsic support for adding [a], nor is it even clear what this phrase means (including whether it means more than [c]). To the extent PO is arguing each proximal information word must itself be indicative of the substance of the linked-to page, that contradicts ’475’s specification, which identifies

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words like “a,” “click,” “here,” and “index” as examples included in (not excluded from) proximal cue word information.

Reply 4 (quoting Ex. 1001, 3:40–59). Petitioner also contends that “determining proximal information” does not require storage. *Id.* at 5 (citing Ex. 1001, 7:2–5).

The record supports Petitioner. The plain meaning of “determining proximal information” in light of the specification does not require storing information about links in association with those links and it does not require information “[a] *that characterizes the content accessible through the link.*” In addition, requirement [b], *association with that link*, and requirement [c], *that the information be near or derived from a link*,” are largely superfluous because as Patent Owner argues, “what makes these information cues ‘proximal’ is ‘that they stand in proximity to other information, such as a link.’” PO Resp. 45 (citing Ex. 2006 ¶ 115).

Figure 2 of the ’475 patent follows:

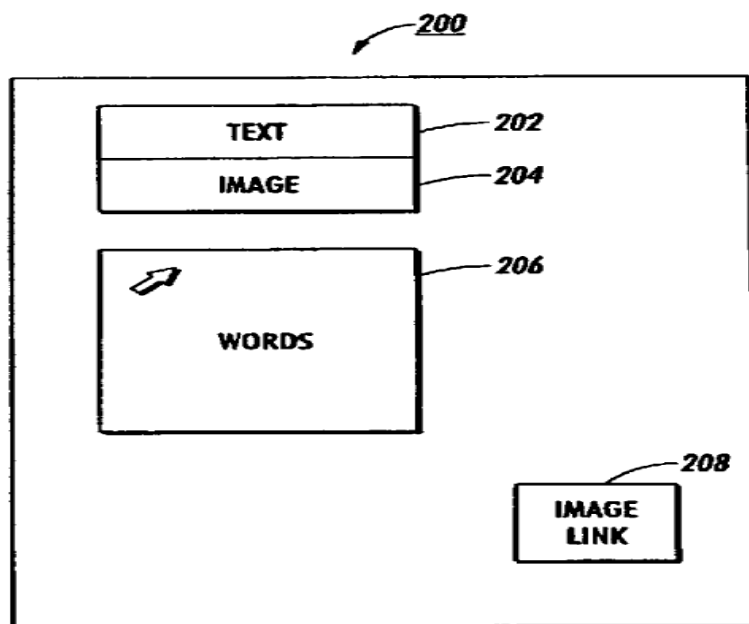


Figure 2 above “illustrates various exemplary links and proximal terms in a typical content portion 200.” Ex. 1001, 3:40–41. “*The proximal cue words*

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may include portions of the text 202 surrounding the link 204.” Id. at 3:45–46 (emphasis added). “Proximal terms represent information cues that convey information to the simulated user.” Id. at 3:41–43. “So for example, if the text 202 says ‘Buy a gift certificate’, then the words ‘buy’, ‘a’, ‘gift’, and ‘certificate’ are used as words that describe the proximal cues.” Id. at 3:46–48. In addition, “if the link 204 . . . ‘http://www.xerox.com/products/support/index.html’ is processed, the words http, www, xerox, com, products, support and index are considered as proximal cue words for the relevant link 204.” Id. at 3:55–59. The disclosed system also may assign weights to the proximal cue words, according certain words “higher up in the structure of a content portion” more weight. Id. at 3:60–65.

In contrast to proximal information, the specification also describes weighting inlinks, outlinks, and content (words on a web page) portions (which are multi-modal information types) to form the user profile. *See, e.g., Ex. 1001, 9:46–60. “From the reference of a content portion, a link that sends the user to another content portion is defined as an ‘outlink’ and a link that brings the user to the content portion is defined as an ‘inlink’.”*

Ex. 1001, 3:35–39. The specification also states that “an outlinks feature vector indicates outward connections or outlinks for each document or web page along the selected user path.” Id. at 9:9–13. Dr. Martin agrees that “outlinks” are “links pointing from the pages elsewhere.” Ex. 2006 ¶ 42.⁷

⁷ Petitioner contends that the prior art (Ex. 2018, “Heer2002”) refers to “tokenized” outlinks—links broken into individual words, and argues that non-tokenized outlinks are not proximal information. Reply 21 (citing Ex. 2018, 3, 5; Ex. 2006 ¶ 59). Citing the same paper (Heer2002), Patent Owner argues that outlinks perform poorly, thereby indicating that proximal information and outlinks are different. PO Resp. 59 (citing Ex. 2018, 5).

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These descriptions and the records show that although an “outlink” and “proximal information” both involve a link on a given page’s content portion, “proximal information” involves stripping or determining words near or in the link (i.e., tokenizing the link if in the link), but determining outlinks does not require stripping words from in or around the link, or tokenizing the link. *See supra* note 7. Determining an outlink simply may involve determining a connection to a page to which the outlink points or determining that a non-tokenized outward URL exists in a web page. *See, e.g.,* Ex. 1001, 3:35–39, 12:46–49 (“The outlink vector determining circuit 3524 determines the outlinks or outward URLs that are referred to by the current document or web page in the document collection or web site 420.”).

Further regarding requirement [a], during the Oral Hearing, Patent Owner argued that “*some* cue or characterization is required,” but conceded that “it’s not required but it’s possible” to check accuracy based on a comparison to the content at the “distal page.” Tr. 39:13–19. Patent Owner verifies in its Sur-reply that “[t]he system need not even examine the web page B” for content comparison to proximal information near the “link naming B” on web page A. Sur-reply 5.

Patent Owner also explained during the Oral Hearing that “Dr. Martin’s . . . not saying that there is some absolute . . . amount of characterization that's sufficiently good.” Tr. 40:1–6. Rather,

[y]ou have to be *attempting to characterize* so that’s why information near or derived from the link, you know, *is likely to be doing that. It doesn't have to, you know, do it perfectly* but it's going *to help* provide some cues, some scent about what's being linked to that presumably led the user down that path.

Tr. 40:4–8. In summary, according to Patent Owner, there is no lower threshold for an “amount of characterization that’s sufficiently good” and

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the proximal information need only “likely” “help provide some cues.” *Id.* Patent Owner therefore implies that any set of words in or near a link is sufficient to characterize the distal content, because this “proximal information” is likely to help provide some cues about the distal content. *See id.* And as noted above, Patent Owner concedes that the system does not require a verification process of comparing the distal content at web page B to the proximal words near the link to web page B. *See* Sur-reply 5.

As Petitioner argues, some of the words near or in a link (which the specification describes as proximal cue words) such as “com,” “www,” and “a,” do not provide much, if any, information about what content exists in the content portion at the distal end of the link. *See* Reply 4 (citing Ex. 1030, 70:10–21). Patent Owner replies that Petitioner’s “specification examples of words (from Ex. 1001, 3:40–59) are divorced from the teachings in that paragraph, which note that multiple words *can be used together* as proximal information (where other conditions are met).” Sur-reply 4 & n.1 (emphasis added). Patent Owner provides an example of “horse near hay,” where all the words near a link must be analyzed, or the “meaning is lost.” *See id.* at 5.

Even if the construction of “proximal information” requires all of the words in or near a link, as discussed above, Patent Owner advances no standard for how accurate the characterization of the associated content must be. In addition, the ’475 patent is permissive as to how many of the words near the link to analyze, for example, the disclosed system may simply analyze “portions” of the text: “For example, *a text 202 associated with a link 204 may provide proximal cues* as to the nature of the linked

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information. The proximal cue words *may include portions of the text* 202 surrounding the link 204.” Ex. 1001, 4:18–21 (emphasis added). Similarly,

[t]ext surrounding the link structure, the title of the proximal page as well as features such as where the link is found within the document *may also* be analyzed for proximal cue words. It will be apparent that *any feature of the proximal document or web page may be used to provide proximal cue words in the practice of this invention.*

Ex. 1001, 8:34–41.

Patent Owner also argues that during his deposition, Petitioner’s expert, Dr. Turnbull, testified using a draft declaration and agreed that text “would have to be associated with something, whether it’s the link or perhaps even part of a link . . . , because we’re keying off the word ‘proximal,’ which is certainly a more indicative word than just, say, ‘information.’” Sur-reply 6 (quoting Ex. 2027, 9:22–10:10).⁸ Patent Owner argues that this statement shows Dr. Turnbull “agreed with [Patent Owner’s] ‘association’ requirement.” *Id.* However, Patent Owner’s quotation obscures the full context of Dr. Turnbull’s testimony, which follows: “I think it would have to be associated with something, whether it’s the link or perhaps even part of a link, *although that’s not described in the ‘475,* because we’re keying off the word ‘proximal,’ which is certainly a more

⁸ Patent Owner argues that “after realizing he relied on and was reading from a *draft [reply] declaration* he prepared for deposition,” Dr. Turnbull “reverted to [Petitioner’s] party line position.” Sur-reply 6 (emphasis added); *see also* Paper 25 (Order authorizing motion for discovery of the draft declaration), 2 (noting that “the parties agreed that at the deposition, Dr. Turnbull initially referred to a draft of his expert declaration before shifting to the final filed version for the remainder of his deposition”); Paper 33 (granting discovery on a portion of Dr. Turnbull’s draft declaration).

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indicative word than just, say, ‘information.’” Ex. 2027, 10:5–10 (emphasis added). In full context—and even if testimony based inadvertently on the draft declaration is probative (*see supra* note 8)—it is not clear how Dr. Turnbull’s testimony supports Patent Owner’s interpretation of association with a link given that he testifies that written description is lacking. Moreover, Dr. Turnbull did not testify during his deposition that the system must retain an association between the proximal words of a link and that specific link and pointed to examples in the specification that satisfy proximal information. *See id.*; *see also id.* at 15:9–12 (“In the examples in the ’475 [patent], there’s no additional requirement that I recall that says it needs to be associated with the link, just simply what I have here from the examples in the ’475 [patent]”); Ex. 1033 ¶ 5 (citing Ex. 1001, 3:41–59, 4:12–13, 8:31–46; Ex. 1003 ¶ 132); Ex. 1033 ¶ 132.

Patent Owner argues that “if ‘proximal information’ is merely ‘information near or derived from a link’ (e.g., mere information or content), then it is unclear how it differs from, for example, ‘content feature’ ‘multimodal information,’ which the claims combine with the ‘proximal information.’” PO Sur-reply 2. However, as explained above, the specification shows that proximal information differs from mere content because the disclosed system derives proximal information from information that is near or in a link, which it distinguishes from content on a page that is not near or in a link. *Compare* Ex. 1001, 3:40–41, Fig. 2 (“illustrat[ing] various exemplary links and proximal terms in a typical content portion 200”), *and* 3:25–26 (“The content portion 120 may further contain a text 122

and an image 124.”), *with id.* at 3:45–46 (“The proximal cue words may include portions of the text 202 surrounding the link 204.”).

Regarding the alleged storage requirement, Patent Owner relies on Figure 4’s step S230, which states “DETERMINE PROXIMAL CUE WORDS,” and the next step, step 235, which states “ADD PROXIMAL CUE WORDS TO PROXIMAL CUE FEATURE VECTOR MATRIX.” Sur-reply 7–8 (analyzing Ex. 1001, Fig. 4). Therefore, according to the specification, and notwithstanding Patent Owner’s arguments to the contrary (*see id.*), the claim step at issue here, “determine proximal information” (*see* Fig. 4, S230), is a separate and distinct step that occurs before any unclaimed step of storing information about a link’s association (*see* Fig. 4, S235).

As Petitioner argues, the claims “ultimately use ‘proximal information’ to compare user profiles (‘clustering multi-modal information and proximal information of user profiles based on similarity’).” Reply 7. In other words, the ’475 patent employs multi-modal information and proximal information to cluster users. In addition, Petitioner persuasively shows that the prior art teaches the combine (10.4) and cluster (10.5) limitations as discussed further below. *Infra* Section II.D.6.a.v–vi. This shows that (according to Petitioner’s persuasive showing), the prior art necessarily stores proximal and multi-modal information as needed to perform these two steps.

In similar fashion, Patent Owner argues that “[t]he ‘combin[ing/e]’ and ‘cluster[ing]’ limitations of the independent claims require proximal information . . . to be at least temporarily stored or tracked. Otherwise, the combining and clustering limitations would have no proximal information

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for inputs.” Sur-reply 6. Therefore, even if the combine (10.4) and cluster (10.5) limitations implicitly require tracking or storing proximal (and other) information, this shows that limitation 10.3 (“determine proximal information”) is a separate requirement from tracking or storing it as a predicate for these other claim limitations. Patent Owner also acknowledges that the challenged claims require that “distinct types of information” (proximal and multi-modal) “be used as part of the claimed ‘combin[ing/e]’ and ‘cluster[ing]’ steps.” Sur-reply 4. As determined below, Petitioner shows that the combined teachings of Chen, Chi, Heer, Pitkow, and Cooke teach or suggest the combine and cluster limitations, even under Patent Owner’s claim construction.

Patent Owner also argues that “the patent requires information about a link to be associated with the link itself (*and at least temporarily stored/tracked*) to permit a combination.” Sur-reply 8 (emphasis added). Here again, Patent Owner relies on storage disclosures related to actions that occur *after* determining proximal information. *See id.* at 7–8 (relying on step S230: “‘In step 230, connections or links identified in steps S205 to S220 are analyzed for proximal cue words’ *before* ‘the proximal cue words are added as proximal cue feature vectors to a proximal cue feature vector matrix’” in step S235 (emphasis added) (quoting Ex. 1001, 6:66–7:5)).

Patent Owner similarly argues that the specification’s “‘feature vector matrix . . . stores information about which proximal cue feature vectors are associated with which links’ in step S235.” Sur-reply 7–8 (quoting Ex. 1001, 6:66–7:5). Patent Owner also argues that Petitioner’s “reading of Figure 4’s step S230 ‘analyzing’ is too constrained—the patent does not say that the analysis does not consider which words are proximal to which

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links.” *Id.* at 8. However, even though, as Patent Owner argues, one of the embodiments in the specification describes storing “information about which proximal cue feature vectors are associated with which link” and even though this embodiment’s process determines this association during steps S205–S220 (Ex. 1001, 6:66–7:5), this association is distinct from “proximal information,” as Petitioner argues. *See* Reply 5 (arguing that with respect to the relied upon passage (i.e., Ex. 1001, 6:64–7:13), “this ‘association’ is not the ‘proximal information’ itself, but rather information ***about*** and ***separate from*** the ‘proximal information’”). And the embodiment refers to “which proximal cue feature *vectors* are associated with which link” (Ex. 1001, 6:66–7:5 (emphasis added)), but the challenged claims do not recite a “proximal cue feature vector,” as Petitioner also argues. *See* Reply 5–6 & n. 7; *see also infra* (discussing claim’s 5 vector).

Patent Owner also contends that “step S235 relies on exactly that [association] information *to implement the invention*.” Sur-reply 8 (emphasis added). This argument supports Petitioner. As noted above, step S235 states “ADD PROXIMAL CUE WORDS TO PROXIMAL CUE FEATURE VECTOR MATRIX.” Ex. 1001, Fig. 4. So determining proximal information occurs before storage in the matrix, and the challenged claims do not recite a “feature vector matrix,” as Petitioner argues. *See* Reply 5–6 & n.7.

Patent Owner also relies on the specification’s Figure 3 embodiment, and states that “the multi-modal information (feature vectors) and proximal information (proximal cue vectors) are determined and stored in vector [sic].” Sur-reply 7. However, as noted above, challenged claims 1 and 10 do not recite vectors. Claim 5 recites “the method of claim 1, further

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comprising: using vectors to represent multi-modal information and proximal information.” Nevertheless, using a vector to *represent* proximal information is a separate and later step apart from *determining* proximal information.

Patent Owner also argues that the dependent claims 2–3 and 11–12 “make clear that there is an association between the information and the link.” PO Resp 45; *see also* Sur-reply 9 (repeating argument and addressing the Reply 3 n.4). Patent Owner argues that “the independent claims already require that proximal information be ‘for content portions associated with the user path,’ which is similar” to the phrase in dependent claims 2, 3, 11, and 12, “analyz[ing/e] portions of a text associated with a link between content portions along the user path.”

It is not clear how these dependent claims show anything related to the claim construction dispute over “determine proximal information.” Analyzing text in or near a link is for a link located “*between* content portions along the user path,” according to dependent claims 2, 3, 11, and 12. This simply narrows the location of the link in independent claims 1 and 10 such that it cannot be on the last content portion (page) on a user path—it must be “*between* content portions along the user path.”

Further, regarding characterizing the distal content accessible through the link, Patent Owner relies on an original paragraph (i.e., ¶ 27) that the Examiner “errantly replaced with a modified version of paragraph 25 as part of an examiner amendment” during prosecution. *See* PO Resp. 46–47 & n.9 (citing Ex. 1002 (prosecution history), 22–34, 124). Patent Owner argues that this original paragraph, which is not in the ’475 patent specification as issued, supports its claim construction such that “the association between

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proximal words and the links they concern is an important aspect of ‘proximal information.’” *Id.* at 47 (quoting Ex. 2006 ¶ 119 (citing Ex. 1002 (prosecution history), 23)).

We need not decide the propriety of relying on a deleted paragraph that Patent Owner failed to correct in our claim construction analysis. That is, even if it is proper to consider omitted paragraph 27 as originally filed, that paragraph is not dispositive to our claim construction because it is merely directed to one embodiment, even if that embodiment involves analyzing words surrounding, or in, a link, and also content portions to which the link points. *See* Reply 7 (arguing that the omitted paragraph does not impose storage or maintenance requirements of the association or relationship between proximal information and its source). As summarized above, several broader descriptions of proximal information apart from the embodiment in paragraph 27 are in the specification (as issued in the ’475 patent) in connection with Figure 2. For example, the specification states that “[i]f the link structure is an image, proximal cue words *surrounding a link frequently* provide some cue words.” *Id.* at 8:41–43. The specification explicitly states that “[i]t will be apparent that *any feature* of the proximal document *or web page* may be used to provide proximal cue words *in the practice of this invention*.” *Id.* at 8:38–41 (emphasis added). These broad disclosures for proximal information show that the disclosed and claimed method contemplates that words in, or surrounding, a link are proximal information or proximal cue words that may, but do not necessarily, accurately describe content to which the link points.

Further supporting this interpretation, as noted above, the ’475 patent specification also states that “a text 202 associated with a link 204 *may*

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provide proximal cues as to the nature of the linked information.” Ex. 1001, 4:16–20 (emphasis added). The specification also states that “[p]roximal terms represent information cues that convey information to the simulated user.” *Id.* at 4:16–18. Nothing in the specification describes how the system measures how accurate the proximal information is with respect to conveying information that describes the content on the distal page to which the link points, and then based on that accuracy (as compared to a threshold, for example), determines that certain cue words pass muster and represent proximal information. And as noted above, Patent Owner argued during the Oral Hearing that there is no threshold requirement for the accuracy of any characterization by the proximal information (words in or near a link) of the content at the distal end of the link. Tr. 40:1–6.

As noted above in connection with Figure 2, the specification describes what proximal information encompasses by stating that “[t]he proximal cue words *may include portions* of the text 202 *surrounding* the link 204.” Ex. 1001, 4:20–21 (emphasis added). It provides another example of text 202 that “says, ‘Buy a gift certificate,’” and explains that “then the words ‘buy’, ‘a’, ‘gift’, and ‘certificate’ are used as words that describe the proximal cues.” *Id.* at 4:22–25. As indicated above, the word “a” is not descriptive even if the words together might be descriptive. The specification provides another example that involves words in a link, stating that “if the link 204 is processed, typical words such as http, www, Xerox, com, products, support and index are considered as proximal cue words for the relevant link.” *Id.* at 4:30–34. Like the word “a,” the letters “www” and “com” are not descriptive of any content to which the link points. Therefore, it is clear from the specification that processing a link involves identifying

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words from either the link or text surrounding the link without necessarily requiring the words to describe distal page content to which the link points.

Original paragraph 28 of the as-filed application, which Patent Owner also reproduces, states that “[i]n *various exemplary embodiments*, the linked to or distal information used *may include* the distal content portion title and the content portion text either alone or in combination *with proximal cue information such as the cue words from the text surrounding the image link.*” PO Resp. 47 (emphasis added) (quoting Ex. 1002, 23). The word “may” in combination with the description of “various exemplary embodiments” signals that this disclosure is not a claim requirement. *See* Ex. 1002, 23; *accord* Ex. 1001, 4:42–46 (same as original paragraph 28).

Based on the foregoing discussion, in light of the specification and prosecution history, “determining proximal information for content portions associated with the user path,” means “finding words in text near or within a link within content portions associated with the user path.” As discussed further below, even if we adopt Patent Owner’s construction, Petitioner shows “determining proximal information for content portions associated with the user path” would have been obvious. *See* Pet. 21–32, 39–40; Reply 20 n.14 (asserting Chi . . . discloses proximal information even under [Patent Owner’s] erroneous construction”), 25 n.17 (addressing Patent Owner’s claim construction with respect to Chi).

2. Multi-Modal Information

Patent Owner also argues that “the plain meaning of ‘multi-modal information’ . . . refer[s] to multiple modalities—such as those in the ’475 Patent, or others that properly distinguish between the respective modalities.” PO Resp. 42–43 (citing Ex. 2006 ¶ 109). Patent Owner

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provides an example of a web page that includes the same word (e.g., “Wiktionary”) in the content and also “in a link to the Wiktionary.org site,” and explains that “the word ‘Wiktionary’ would be represented at least twice [as] . . . multi-modal information: once for the web page content, and once separately for its outlinks.” *Id.* at 41–42 (citing Ex. 2006 ¶ 103). Patent Owner’s example indicates that a textual word appearing in different parts of a web page (e.g., on the page or in a link on the page) may represent different modalities or features. Accordingly, this example by Patent Owner supports our claim construction of “proximal information,” where the same word in a link also may be a content word on a page that is not proximal to a link.

Patent Owner also argues that different modalities must be “distinguishable modalities represented together.” PO Resp. 42 (quoting Ex. 2006 ¶ 105). The ’475 patent system is able to distinguish different sources of information (and, for example, put each information piece in a vector sub-space and/or assign different weights thereto) without requiring a different format for different modalities. *See* Ex. 1001, Fig. 10, step 3527 (FEATURE WEIGHTING CIRCUIT); *id.* at 6:20–23 (“The multi-modal vector allows different types of information representing the document collection to be combined and operated upon using a unified representation.”); *supra* Section I.B (summarizing the ’475 patent disclosure). Heer supports this interpretation by referring to “each source of information (or modality),” thereby indicating different sources of information on a web page correspond to different modalities under nomenclature used by PARC scientists. *See* Ex. 1007, 4 (“All available information on items is embedded into this single large multimodal vector

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space, where each modality occupies a sub-space.”). Patent Owner contends that “[t]he Heer paper (cited during prosecution and cited on the face of the ’475 [p]atent) and the Chen patent application also use the term ‘multi-modal information.’” PO Resp. 42 n.8 (citing Ex. 1007; Ex. 1004). Patent Owner also concedes that “[t]he Heer paper and the Chen patent application cite modalities similar to the ’475 [p]atent.” *Id.*

Nevertheless, Patent Owner argues that multi-modal and proximal information “may not start in same format” because the disclosed system combines the two to “form a user profile having a unified representation.” PO Resp. 43 (citing Ex. 2006 ¶ 123). Dr. Martin’s testimony does not support this argument. Paragraph 123 of his declaration does not address different formats. Combining the two types of information into a unified representation does not require them to start in the same format. To the contrary, as Petitioner argues, Dr. Martin testifies that the information “do[es] not necessarily start with the same representation.” Reply 7 (quoting Ex. 2006 ¶ 125).

Claim 1 recites “determining proximal information” prior to “combining the multi-modal information . . . and the proximal information,” indicating that there is no specific or relative format requirement for any of the claimed information prior to or after the combining step. The “Wiktionary” text example that Patent Owner supplies as summarized above also supports this characterization (even though outlinks do not require a textual analysis as discussed in the previous section construing “proximal information”).

In any event, as Petitioner argues, there is no need on this record to construe “multiple-modal information” explicitly, because Patent Owner

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does not dispute that Chen discloses “multi-modal information.” *See* Reply 1; *Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (“[W]e need only construe terms ‘that are in controversy, and only to the extent necessary to resolve the controversy.’” (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999))).

3. Other Terms

Additionally, there is no need to construe any other claim terms expressly to resolve the parties’ disputes on the current record. *See Nidec Motor Corp.*, 868 F.3d at 1017 (Fed. Cir. 2017) (“[W]e need only construe terms ‘that are in controversy, and only to the extent necessary to resolve the controversy.’” (quoting *Vivid Techs.*, 200 F.3d at 803)).

C. Principles of Law

A patent claim is unpatentable under 35 U.S.C. § 103 if “the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.” 35 U.S.C. § 103 (2011); *see also KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations including (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art; and (4) when in evidence (as alleged here), objective indicia of nonobviousness. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

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D. Asserted Obviousness of Claims 1–18 over Chen, Pitkow, Chi, Heer, and Claims 10–18 over Chen, Pitkow, Chi, Heer, and Cooke

Petitioner contends claims 1–18 are unpatentable under 35 U.S.C. § 103(a) as obvious over the combined teachings of Chen, Pitkow, Chi, and Heer. Petitioner alternatively asserts that claims 10–18 are unpatentable under 35 U.S.C. § 103(a) as obvious over the combined teachings of Chen, Pitkow, Chi, Heer, and Cooke.

In support, Petitioner relies upon the Turnbull Declaration (Ex. 1003) and the Turnbull Reply Declaration (Ex. 1033). Patent Owner argues that the asserted combinations do not teach certain limitations of independent claims 1 and 10, focusing on the “determin[ing/e] proximal information” limitations and asserting secondary considerations of nonobviousness, with reliance on the Martin Declaration (Ex. 2006). PO Resp. 49–65. Patent Owner argues the challenged claims together. *See e.g., id.* at 49 (grouping independent claims 1 and 10 together), 62 (same), 65–67 (arguing secondary considerations on nonobviousness without specifying a claim); Reply 8 n.8 (addressing Patent Owner’s arguments regarding independent claims 1 and 10 together and noting that Patent Owner does not address “the Petition’s mapping of the dependent claims”).

As the table listing grounds above shows (Section I.D), Petitioner also asserts the following grounds: Claims 1–7, 9–16, 18 as obvious over Chen and Pitkow, and alternatively, Chen, Pitkow, and Chi; claims 1–18 as obvious over Chen, Pitkow, and Heer; claims 10–16 and 18 as obvious over Chen, Pitkow, and Cooke and alternatively, Chen, Pitkow, Chi, and Cooke; and claims 10–18 as obvious over Chen, Pitkow, Heer, and Cooke. For purposes of this trial, based on the evidence and arguments presented, these grounds are all similar to one or both of the two grounds listed at the outset

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of this section, namely, the asserted obviousness of claims 1–18 over Chen, Pitkow, Chi, and Heer, and claims 10–18 over Chen, Pitkow, Chi, Heer, and Cooke. These latter two grounds are dispositive of all trial issues.

Accordingly, we reach only the latter two grounds here. *See SAS Inst. Inc. v. Iancu*, 138 S. Ct. 1348, 1359 (2018) (holding that a petitioner “is entitled to a final written decision addressing all of the claims it has challenged”) and *Bos. Sci. Scimed, Inc. v. Cook Grp. Inc.*, 809 F. App’x 984, 990 (Fed. Cir. 2020) (non-precedential) (recognizing that the “Board need not address issues that are not necessary to the resolution of the proceeding” and has “discretion to decline to decide additional instituted grounds once the petitioner has prevailed on all its challenged claims”).

1. *Chen (Ex. 1004)*

Chen describes a multi-modal vector system that clusters users together according to similarities of documents viewed by the users while browsing information on the web or internet. Ex. 1004, code (57), ¶¶ 1–2. In particular, Chen discloses a “system and method for browsing, retrieving, and recommending information from a collection [of documents; the embodiments] us[ing] multi-modal features of the documents in the collection, as well as an analysis of users’ prior browsing and retrieval behavior.” *Id.* at code (57). The system involves “various disclosed methods for quantitatively representing documents in a document collection as vectors in multi-dimensional vector spaces, quantitatively determining similarity between documents, and clustering documents according to those similarities.” *Id.* The system “quantitatively represent[s] users in a user population, quantitatively determin[es] similarity between users, cluster[s]

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users according to those similarities, and visually represent[s] clusters of users by analogy to clusters of documents.” *Id.*

“[E]ach document (for example, an HTML document 110) chosen from a collection 120 maps to a set of feature vectors 112, one for each modality (for example, a text vector 114 and a URL vector 116).”

Ex. 1004 ¶ 37. The system includes analysis of “text content, document link, inlinks, outlinks, text genre, image color histogram, and image complexity.” *Id.* ¶ 41. “The first two of the listed features are text based, inlinks and outlinks are hyperlink based, text genre is probability based, and the final two features (image color histogram and image complexity) are image-based.” *Id.*

Figure 3 of Chen follows:

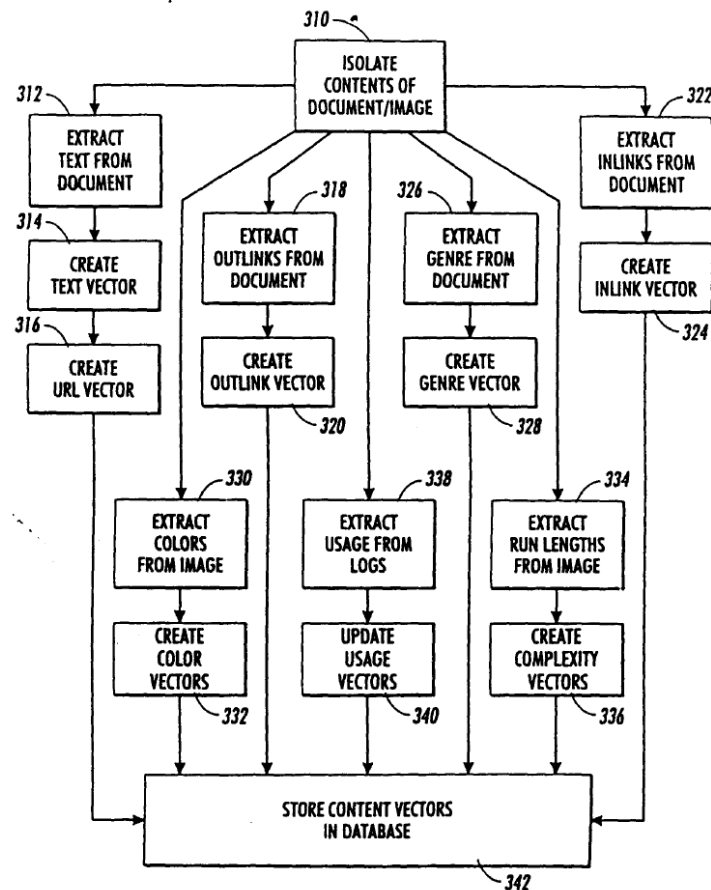


Figure 3 is a flow chart illustrating the process used to calculate feature vectors representing documents and users. Ex. 1004 ¶ 34. In relation to the embodiment as described with respect to Chen's Figure 3 above, "[t]ext is extracted from the document . . . and used to create a corresponding text vector . . . and a corresponding URL vector (step 316)."

Id. ¶ 42. In addition,

all outlinks (hypertext links within the document that point elsewhere) are extracted (step 322) and used to create a corresponding outlink vector (step 324). Inlinks (documents within the collection that point to the subject document) are extracted (step 322) and used to create a corresponding outlink vector (step 324). Text genre is identified (step 326) and used to create a corresponding genre vector (step 328).

Id. ¶ 43.

"If the new document is or contains at least one image, then the colors are extracted from the image . . . and used to create a corresponding color histogram vector[.] Horizontal and vertical runs of a single color . . . are also extracted from the image . . . and used to create a color complexity vector[.]" *Id.* ¶ 44. "Finally, references to the document are extracted from usage logs . . . and used to update users' page access vectors[.]" *Id.* ¶ 45.

"The text feature is a term vector where the elements of the vector represent terms used in the document itself." Ex. 1004 ¶ 51. "[F]or an all-text or HTML document . . . , the text vector *is based on the document's entire text content.*" *Id.* (emphasis added). "[E]ach text document . . . is embedded by the present invention into . . . a vector space having n_t dimensions, wherein each dimension is represented by a real number[], wherein n_t is the total number of unique words in the collection" *Id.* ¶ 53. "[T]he similarity between two text vectors can be calculated via a simple cosine distance [T]he cosine distances between pairs of

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documents can be used to cluster documents based on text features alone, or can be used in combination with other features.” *Id.* ¶ 57. Therefore, “[i]t is also possible, and preferable under certain circumstances, to calculate an aggregate similarity between two documents[;] . . . [t]his aggregate similarity then represents the overall similarity between documents based on all possible (or practical) modalities.” *Id.* ¶ 77.

Chen’s “[m]ulti-modal features may take on many forms, such as user information, text genre, or analysis of images.” Ex. 1004 ¶ 27. Chen’s Table 1 lists “features . . . [that] are exemplary only,” as follows (*id.*):

Table 1

Feature	Modality
Text Vector	text
Subject	text
URLs	text
Inlinks	hyperlink
Outlinks	hyperlink
Genre	genre
Page Usage	user info
Color Histogram	image
Complexity	image

Chen’s Table 1, above, is a feature table listing “several possible features and modalities” “usable in the invention,” which Chen describes as “[m]ulti-modal features . . . [that] can be considered a form of metadata, derived from the data (text and images, for example) and its context, and assigned automatically or semi-automatically, rather than current image

search systems, in which metadata is typically assigned manually.”

Ex. 1004 ¶ 27.

2. *Pitkow (Ex. 1005)*

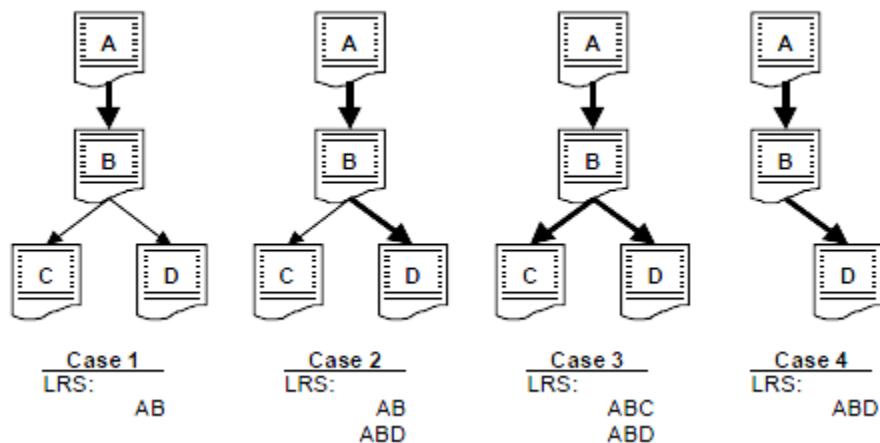
Pitkow describes “[m]odeling and predicting user surfing paths.”

Ex. 1005, 2. “[The] predictive modeling techniques . . . attempt to reduce model complexity while retaining predictive accuracy.” *Id.* “The techniques merge two methods: a web-mining method that extracts significant surfing patterns by the identification of *longest repeating subsequences* (LRS) and a pattern-matching method that embodies the principle of *weighted specificity*.” *Id.* “The LRS technique serves to reduce the complexity of the model by focusing on significant surfing patterns. . . . The weighted specificity principal exploits the finding that longer patterns of past surfing paths are more predictive.” *Id.*

“[U]sers begin surfing a web site starting from different entry pages . . . [and] arrive at specific web pages having traveled different surfing paths[.]” Ex. 1005, 2. “The distribution of visits over all WWW pages is obtained . . . [and] then used to re-weight and re-rank the results of a textbased search engine.” *Id.* at 3. “Under this model, surfer path information is viewed as an indicator of user interests, over and above the text keywords entered into a standard search engine.” *Id.*

“The LRS technique treats . . . some of the paths [as] noise. This hinges off the insight that many paths occur infrequently, often as a result of erroneous navigation. Identifying repeating subsequences enables common sub-paths to be extracted.” Ex. 1005, 7.

Pitkow's Figure 2, reproduced below, describes the technique:



“Figure 2. Examples illustrating the formation of longest repeating subsequences (LRS). Thick-lined arrows indicate more than one traversal whereas thin-lined arrows indicate only one traversal. For each case, the resulting LRS are listed.” *Id.* at 8.

“[Figure 2] illustrate[s] . . . the case where a web site contains the pages A, B, C, and D, where A contains a hyperlink to B and B contains hyperlinks to both C and D.” Ex. 1005, 8. “As shown in Figure 2, if users repeatedly navigate from A to B, but only one user clicks through to C and only one user clicks through to D (as in Case 1), the longest repeating subsequence is AB.” *Id.* “If however more than one user clicks through from B to D (as in Case 2), then both AB and ABD are longest repeating subsequences. In this event, AB is a LRS since on at least one other occasion, AB was not followed by ABD.” *Id.* “In Case 3, both ABC and ABD are LRS since both occur more than once and are the longest subsequences. . . . AB is not a LRS since it is never the longest repeating subsequence as in Case 4 for the LRS ABD.” *Id.*

“LRS have several . . . properties. First, the complexity of the resulting n-grams is reduced as the low probability transitions are

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automatically excluded from further analysis.” Ex. 1005, 8. “Another interesting property of the LRS model is its bias towards specificity. Any single page-to-page transition that is always repeated as part of longer sequences is not included into the LRS model.” *Id.* at 9.

3. *Chi (Ex. 1006)*

Chi describes modeling and predicting user surfing paths and seeks to deliver information to users based on user travel histories. Ex. 1006, 1, 4. Chi’s system determines information needs and predicts expected surfing patterns: “First, for a particular pattern of surfing, [the system] infer[s] the associated information need[;]” and “[s]econd, given an information need, and some pages as starting points, [the system] predict[s] the expected surfing patterns.” *Id.*

Chi’s system assumes that “user behavior in the information environment is guided by information scent, which is determined from the perception of the value and cost of the information with respect to the goal of the user.” Ex. 1006, 1. Chi explains that “[o]n the Web, users typically forage for information by navigating from page to page along Web links” and “[t]he content of pages associated with these links is usually presented to the user by some snippets of text or graphic.” *Id.* at 2. “Foragers use these proximal cues (snippets; graphics) to assess the distal content (page at the other end of the link).” *Id.* “Information scent is the imperfect, subjective perception of the value and cost of information sources obtained from proximal cues, such as Web links, or icons representing the content sources.” *Id.*

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4. Heer (Ex. 1007)

The authors of Heer (Heer, Chi) are the named inventors of the '475 patent. *Compare* Ex. 1007, 1, with Ex. 1001, code (75). Heer describes computer-implemented techniques involving “a form of clustering, called Multi-Modal Clustering (MMC), which utilizes multiple sources of information (modalities) to generate user groupings.” Ex. 1007, 2.⁹ That is, Heer describes a multi-modal clustering of user types. *Id.* at 4.

Figure 1 of Heer follows:

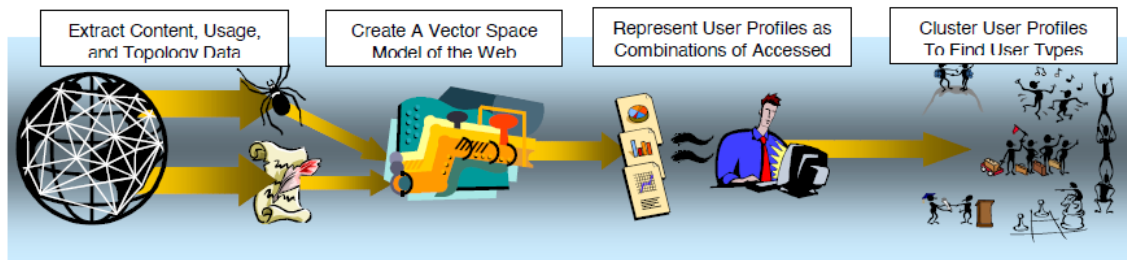


Figure 1: Architectural Data Flow of the Multi-Modal Clustering System for Identifying Web User Types.

Figure 1 of Heer illustrates the data flow of Heer’s multi-modal clustering system. Ex. 1007, Fig. 1. To model each user type, Heer’s vector space model uses different modalities to represent each web page in a user path, “page content, URLs, inlinks, and outlinks.” *Id.* at 5. Like Pitkow, Heer also uses the “LRS” technique to define surfing paths as follows:

[A] Web-mining technique . . . extracts significant surfing paths by the identification of longest repeating subsequences (LRS). A longest repeating subsequence (LRS) is a sequence of items where (1) subsequence means a set of consecutive items, (2) repeated means the item occurs more often than some threshold T , where T typically equals one, and (3) longest means that although a subsequence may be part of another repeated subsequence, there is at least one occurrence of this subsequence where this is the longest repeating.

⁹ Page citations refer to the original page numbers in accordance with Petitioner’s citations.

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Id. at 4.

Heer states that “the LRS technique extracts surfing paths that are likely to re-occur and reduces noise in the usage data,” and Heer’s system “use[s] the LRS data mining technique to identify significant surfing paths in Web usage data.” Ex. 1007, 5. Then, “[e]ach significant surfing path is treated as a user profile.” *Id.* “[E]ach user profile is essentially a list of documents that represent a significant user history through the Web site.” *Id.* “To represent the profile,” Heer’s system “build[s] up a feature vector of each Web page, and then construct[s] the profile as a weighted combination of the feature vectors.” *Id.*

Heer’s system generally “represent[s] each user path profile as a combination of multi-modal feature vectors describing each Web page,” and then “appl[ies] the clustering technique to these user profile vectors.” Ex. 1007, 4. Heer’s method strives to “accurately represent the information at hand,” and “also provide a readily calculable similarity metric, without which any clustering is impossible.” *Id.* at 5.

Like the ’475 patent, Heer’s method determines not only “content words,” but “other forms of document information such as hyperlinks, and URL tokens.” Ex. 1007, 6. Heer states that its “idea . . . *is to use as much information as we have* on each item to cluster the items.” *Id.* at 4 (emphasis added). Heer states that “[f]or example, the content keywords for a Web page can have their own feature vector (e.g., the frequency of each keyword’s occurrences on that page), which can be combined with *feature vectors that describe the images* on that page (e.g., the color of each pixel).” *Id.* at 4 (emphasis added).

In summary, Heer’s method involves embedding “[a]ll available information on items” into a “single large multi-modal vector space,” defining a “similarity metric for the combined multi-modal feature vectors” for each individual modality, and then “apply[ing] traditional clustering algorithms.” Ex. 1007, 4.

5. *Cooke (Ex. 1024)*

Cooke describes an “automatic translation of a computer program into an application specific integrated circuit.” Ex. 1024, 1:7–9. “A computer program . . . is compiled into an intermediate data structure which represents its control and data flow. This data structure is analyzed to identify critical blocks of logic which can be implemented as an application specific integrated circuit” *Id.* at 2:22–28. Specifically, “[t]he computer program source code is parsed with standard compiler technology into a language independent intermediate format. The intermediate format is a standard control and data flow graph, but with the addition of constructs to capture loops, conditional statements, and array accesses.” *Id.* at 2:60–64. “These constructs capture all the high level information necessary for parallelization of the code.” *Id.* at 2:67–3:2.

“The [field programmable gate array] FPGA has one or more independent blocks of reconfigurable logic. Each block may be reconfigured without affecting any other block.” Ex. 1024, 5:35–37. “A reconfigurable FPGA environment presents the following problems for [the] compiler to solve: selecting the total set of functions to be implemented, partitioning the functions across multiple FPGA blocks, and scheduling the loading and activation of FPGA blocks during the program execution.” *Id.* at 5:42–47. “The partitioning will group together functions that finish

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at close to the same time.” *Id.* at 5:58–59. “The set of all such configuration tasks . . . may be scheduled with standard multiprocessor scheduling algorithms, treating each physical FPGA block as a processor.” *Id.* at 6:14–17.

6. Obviousness Analysis

a. Claims 1 and 10

As indicated above, Petitioner asserts that the combined teachings of Chen, Pitkow, Chi, and Heer would have rendered claims 1 and 10 obvious, and that the combined teachings of Chen, Pitkow, Chi, Heer, and Cooke would have rendered claim 10 obvious. Pet. 21–75. Patent Owner disagrees. PO Resp. 48–67. For purposes of this trial, independent “computer implemented method” claim 1 is similar to independent “computer system” claim 10, with the parties treating the two together. *See* Pet. 65 (addressing similarities and differences between claims 1 and 10 and relying on its showing for claim 10); PO Resp. 48–67 (grouping claims 1 and 10 together); *compare* Ex. 1001, 15:28–42 (claim 1), *with id.* at 16:5–23 (claim 10). In response to the parties’ briefing, our analysis focuses on the limitations of claim 10.

i. Preamble

The preamble of claim 10 recites a “computer system to cluster user sessions using multimodal information and proximal information.” Pet. 21. Petitioner contends that the prior art teaches the preamble to the extent it is limiting. *See id.* at 21 n.5.

Specifically, Petitioner contends a “POSITA would have been motivated and found it obvious and straightforward to implement Chen’s [collection use analysis (CUA)] techniques (including multi-modal

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clustering) using Pitkow’s teachings of selecting user paths using LRS.” Pet. 28 (emphasis omitted) (citing Ex. 1003 ¶¶ 128–130). Petitioner contends “that implementing Chen’s CUA techniques using Pitkow’s teachings of extracting information from user paths would result in the clustering of user sessions as recited . . . such that . . . information from user paths clusters user sessions.” *Id.* at 30 (emphasis omitted) (citing Ex. 1003 ¶ 130). Further regarding combining Pitkow and Chen, Petitioner reasons that “in the combined system, instead of selecting documents from, e.g., the entirety of a user’s browsing history, the system would beneficially analyze only websites users visited that were along user paths, as discussed above.” *Id.* at 34 (citing Ex. 1003 ¶ 154).

Petitioner also contends that “Chen discloses gathering information about web pages based on a user’s prior browsing behaviors, and, *inter alia*, clustering users based on that information.” Pet. 31. (citing Ex. 1004 ¶¶ 22, 24, 34, 135, 165). Petitioner relies on Chen’s statement that it is “desirable to be able to *exploit and combine information available from all possible modalities*.” *See id.* (emphasis added) (quoting Ex. 1004 ¶ 135).

Petitioner contends that “Chen discloses proximal information,” which the ’475 patent describes as “text . . . associated with a link,” or “text of the link structure.” Pet. 30 (quoting Ex. 1001, 3:43–44, 8:31–32; citing *id.* at 3:41–59, 4:12–14, 4:45–46, 8:31–46). Petitioner relies on Chen’s specific disclosure of analyzing “*text surrounding an image*” *Id.* (emphasis by Petitioner) (quoting Ex. 1004 ¶ 25). In the quoted paragraph, Chen further states that “[m]ulti-modal information, in the form of text surrounding an image and some simple image features, is used in this process.” Ex. 1004 ¶ 25.

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Petitioner quotes Chen as stating “‘hotlinks’ are usually URLs,” (Pet. 30 (quoting Ex. 1004 ¶ 5)), and explains that Chen “describes using the text from breaking up a URL in its analysis” (*id.* (citing Ex. 1004 ¶ 59)). Petitioner also explains that “Chen’s multi-modal information includes *proximal* information, such as ‘text in hyperlinks,’ and ‘terms in URLs . . . extracted from . . . outlinks.’” *Id.* at 13 (quoting Ex. 1004 ¶¶ 52, 62). At cited paragraph 52, Chen explains that “for purposes of the invention . . . images do not necessarily contain text, *but are described by text in the hypertext links and URLs that point to them*. Images containing text (such as facsimile bitmaps) can have their text extracted via known document image decoding techniques.”

Petitioner adds that, even if Chen does not disclose proximal information, it would have been obvious as advantageous and routine to employ proximal information to one of ordinary skill in the art, where Chen states that “[i]t is desirable to . . . combine information available from all possible modalities” and “[a]ny type of information that is available about users is collected [including] the text content, inlinks, outlinks, and URLs of these pages [users access].” Pet. 30–31 (quoting Ex 1004 ¶¶ 135, 165; citing Ex. 1003 ¶¶ 133–134).

Petitioner also contends that the combined teachings of Chen and Chi render using proximal information obvious for improving the system’s “predictive power,” as follows:

Chen states it is “desirable to be able to exploit and *combine information available from all possible modalities*.” EX1004, [0135]. Chi discloses using information about visited web page content and linkage topology (including proximal information) to similarly satisfy a user’s informational needs, “suggesting information pieces to users based on a user’s traversal history.”

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EX1006, 2; *see also id.*, 3 (“proximal cues”). POSITA would have been motivated and found it obvious and straightforward to implement Chen’s CUA techniques using Chi’s advantageous teachings of proximal cues to improve the predictive power of the system based on this additional information being gathered from visited pages. For POSITA, it would have been obvious . . . in view of the similar disclosures in Chen[] and clear (including from these explicit teachings) this would work and provide the expected functionality to yield predictable results *See* EX1003, ¶¶135–141.

Pet. 31–32 (emphasis added). On cited page 3, Chi states that “[t]here are a variety of ways to obtain proximal cues. For example, we may look at (1) the words in the link itself, (2) the text surrounding a link . . . the graphics related to a link, (3) the position of the link on the page, etc.” Ex. 1006, 3.

Patent Owner presents no arguments specifically directed to the preamble. *See generally* PO Resp. Patent Owner presents arguments with respect to limitation 10.3, which relate to the preamble, and we address the arguments below. Based on the record, including after considering Patent Owner’s arguments with respect to secondary considerations of nonobviousness as discussed further below, we determine that Petitioner persuasively shows that the combination of Chen, Pitkow, Chi, and Heer, teaches the preamble. Therefore, we need not decide whether the preamble is limiting.

ii. Limitation 10.1

Limitation 10.1 recites “a user path determining circuit that selects a plurality of user paths in a collection of content portions.” Pet. 32.

Petitioner relies partly on its showing with respect to the preamble as summarized above, stating as follows:

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Chen in view of Pitkow renders obvious selecting a plurality of user paths in a collection of content portions . . . associated with each user path, as discussed in cl.10.pre. . . . [I]n the combined system, instead of selecting documents from . . . the entirety of a user's browsing history, the system would beneficially analyze only websites users visited that were along user paths *See* cl.10.pre; EX1003, ¶154.

Id. at 34 (emphasis omitted).

Addressing the repeated claim requirement for a respective “circuit” performing the operations of limitations 10.1–10.5, Petitioner explains that Chen discloses “circuits” because Chen’s “Figure 1 shows . . . [a] computer system, including, *e.g.*, a specific illustrated processor 122, along with terminals (128, 130, 132) that POSITA would have understood also contained processors.” *See* Pet. 34.

Petitioner explains that “POSITA would further have understood that the processors in Chen . . . perform their operations using software, and that all of Chen’s disclosures of, *e.g.*, ‘program[s]’ to perform its operations are disclosures of software running on processors.” Pet. 35 (alteration in original) (citing Ex. 1004 ¶¶ 116, 139, Fig. 1). Petitioner points to the ’476 patent specification to support its interpretation of “circuits.” *See id.* (“[E]ach of the various circuits . . . can each be implemented as software routines. . . executing on a programmed general purpose computer, a special purpose computer, a microprocessor or the like.” (emphasis omitted) (quoting Ex. 1001, 14:47–51)).

Alternatively, Petitioner relies on Cooke’s teachings to modify or supplement Chen’s software and processor teachings to teach circuits, as follows:

[T]o the extent it is argued a distinct circuit is required for each operation, POSITA would have understood that using

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distinct circuits to perform distinct operations would advantageously result in an optimized and faster system. . . . EX1003, ¶159. . . . Alternatively with respect to Grounds 5–8, Cooke expressly describes using separate/distinct circuits for different operations, and explains this advantageously provides optimized and faster performance. EX1024, 1:7–30, 5:31–37 POSITA would have found it obvious . . . particularly in view of Chen’s disclosures that “each feature is used separately” (EX1004, [0049]), each “text feature . . . can be calculated . . . as a separate and independent feature” (EX1004, [0058]), and its system benefits from a “fast” and “efficient” algorithm (EX1004, [0169]). POSITA would clearly recognize that implementing operations . . . using Cooke’s teachings of separate hardware circuits would . . . have the expected functionality [and] yield predictable results EX1003, ¶¶160–162.

Id. at 36–37 (footnote omitted); *see also* (for the respective circuits)

id. at 37–38 (limitation 10.2), 39–40 (limitation 10.3), 43 (limitation 10.4), 43–45 (limitation 10.5).¹⁰

Patent Owner presents no arguments directed specifically to limitation 10.1. *See generally* PO Resp. Based on the record, including after consideration of Patent Owner’s arguments with respect to secondary considerations of nonobviousness as discussed further below, we determine that Petitioner persuasively shows that the combination of Chen, Pitkow, Chi, Heer, with or without the added teachings of Cooke, teaches limitation 10.1.

iii. Limitation 10.2

Limitation 10.2 recites “a multi-modal information determining circuit that determines multi-modal information for content portions associated with

¹⁰ In the omitted footnote, Petitioner asserts that a separate circuits requirement “would be in tension with [the] ’475 [patent’s] disclosures.” Pet. 36 n.14 (citing Ex. 1001, 14:47–55).

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the user path.” Petitioner relies on some of the above-discussed arguments with respect to the preamble and limitation 10.1, including Cook’s circuit disclosures, stating that “Chen in view of Pitkow renders obvious performing Chen’s CUA, which includes extracting content portions (including multi-modal information) for visited websites, using Pitkow’s teachings of user paths.” Pet. 38 (emphasis omitted) (citing Ex. 1003 ¶ 173). Petitioner quotes Chen as disclosing “locate desired information based on the multi-modal features of *documents in the collection*, as well as similarities among users’ browsing habits.” *Id.* at 32 (quoting Ex. 1004 ¶ 14). Referring to Chen’s Figure 1, Petitioner quotes Chen as stating that “*each document . . . chosen from a collection* 120 maps to a set of feature vectors 112, one for each modality”. *Id.* at 32 (quoting Ex. 1004 ¶ 37). Petitioner identifies Chen’s multi-modal information as including “text,” “URLs,” “outlink,” “inlink,” “text genre,” “multi-modal features,” “colors” for “color histogram,” and “run lengths” for “[image] complexity.” *Id.* at 21–22 (citing Ex. 1003 ¶¶ 96–124).

Petitioner also explains that “URL information is proximal information if text is extracted from outlinks/hyperlinks to another page,” but “URL information is multi-modal” and “not proximal” “if extracted from, e.g., a URL for a given content portion/webpage itself.” Pet. 22 n.7 (citing Ex. 1003 ¶¶ 60, 107 n.3).

Patent Owner presents no arguments directed specifically to limitation 10.2. *See generally* PO Resp. Based on the record, including after consideration of Patent Owner’s arguments with respect to secondary considerations of nonobviousness as discussed further below, we determine that Petitioner persuasively shows that the combined teachings of the

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combination of Chen and Pitkow, with or without the added teachings of Cooke, teaches limitation 10.2.

iv. Limitation 10.3

Limitation 10.3 recites “a proximal information determining circuit that determines proximal information for content portions associated with the user path.” Petitioner relies on its showing with respect to the preamble of claim 10, stating as follows:

As discussed above (cl.10.pre), Chen in view of Pitkow renders obvious implementing Chen’s CUA techniques using Pitkow’s teachings of user paths. *See* cl.10.pre. Chen additionally discloses that the information for content portions gathered for clustering includes proximal information about pages a user visited. EX1004, Abstract, [0006]–[0007], [0014], [0024], [0130]–[0135]. Thus, Chen in view of Pitkow renders obvious determining proximal information for content portions associated with the user path. EX1003, ¶187.

To the extent further disclosure of determining proximal information is required, Chen in view of Pitkow and Chi render it obvious. *See* cl.10.pre; EX1003, ¶¶188–191.

Pet. 39–40.

Petitioner argues that Chen discloses proximal information as follows:

Chen’s “text in hyperlinks,” and text associated with “hotlinks” are **proximal information** within ’475’s disclosure because they are “text . . . associated with a link,” or “text of the link structure.” *See* EX1001, 3:41–59, 8:31–46; *see also id.* 4:12–14, 4:45–46. Similarly, Chen discloses analyzing “*text surrounding an image*” and explains images can be clicked on to follow links. *See* EX1004, [0005] (“selecting the hotlink (often by clicking a[n] . . . image . . .)”), [0025] (“text surrounding an image”). This “text surrounding an image” is also proximal information because it is “text surrounding the link,” as described in ’475. *See* EX1001, 8:31–46. Chen also explains “hotlinks”

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are usually URLs (EX1004, [0005]), and describes using the text from breaking up a URL in its analysis (EX1004, [0059]).

Pet. 30 (citing Ex. 1003 ¶¶ 132–133).

To the extent Chen does not disclose proximal information, Petitioner contends that a person of ordinary skill in the art

would have found it obvious, advantageous, and routine to implement Chen’s CUA technique using proximal information with [a reasonable expectation of success] particularly in view of Chen’s disclosures that, for its disclosed CUA, “[i]t is desirable to . . . combine information available from all possible modalities” and “[a]ny type of information that is available about users is collected [including] the text content, inlinks, outlinks, and URLs of these pages [users access]” (EX1004, [0135], [0165]). EX1003, ¶¶ 133–134.

Pet. 30–31.

Petitioner also contends that the combined teachings of Chen, Pitkow, and Chi, would have rendered obvious implementing Chen’s clustering “techniques using Pitkow’s teachings of user paths” in order to “similarly satisfy a user’s informational needs.” Pet. 31.¹¹ In particular, Petitioner asserts that

Chen discloses gathering information about web pages based on a user’s prior browsing behaviors, and, *inter alia*, clustering users based on that information. EX1004, [0022], [0024], [0034], [0135], [0165]. Chen states it is “desirable to be able to exploit and combine information available from all possible modalities.” EX1004, [0135]. Chi discloses using information about visited web page content and linkage topology (including proximal information) *to similarly satisfy a user’s informational*

¹¹ Petitioner also contends that a person of ordinary skill “would . . . have recognized that Chi, Pirolli, and Pitkow named on ‘Chi’ are also named inventors of Chen, suggesting relatedness of the work and further motivation to combine.” Pet. 31 n.12 (citing Ex. 1004, 1; Ex. 1006, 1; Ex. 1003 ¶ 192).

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needs, “suggesting information pieces to users based on a user’s traversal history.” EX1006, 2; *see also id.*, 3 (“proximal cues”).

Pet. 31–32 (second emphasis added).

Petitioner also contends that it would have been “obvious and straightforward to implement Chen’s CUA [(collection use analysis)] techniques using Chi’s advantageous teachings of proximal cues to improve the predictive power of the system based on this additional information being gathered from visited pages.” Pet. 32. Petitioner explains that adding proximal information to Chen’s clustering system would have been routine and predictable at providing the expected functionality. *Id.* (citing Ex. 1003 ¶¶ 135–141). As noted above, Petitioner alternatively relies on Cooke to suggest separate circuits for separate operations. *See id.* at 39–40.

Determining Proximal Information

Patent Owner argues that Chen does not disclose or suggest limitation 10.3, “determine proximal information for content portions associated with the user path,” and the corresponding limitation in claim 1, “determining proximal information for content portions associated with the user path.” PO Resp. 49–60.

Patent Owner contends that Petitioner’s reliance on Chen “falls short” and amounts to “misleading depictions of what Chen actually teaches.” PO Resp. 51 (citing Ex. 2006 ¶¶ 130–155). Patent Owner provides two examples. First, according to Patent Owner, Chen does not disclose “analyzing ‘text surrounding an image’, . . . much less analyzing text surrounding image links.” *Id.* (quoting Pet. 30). Patent Owner explains that

Chen mentions the basic point that “hotlinks” may be selected “often by clicking a marked word, image, or area with a pointing device, such as a mouse” and then separately—**20 paragraphs later**—notes that “[m]ulti-modal information, in the form of text

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surrounding an image and some simple image features, is used in [the system's] process.”

PO Resp. 51–52 (citing Ex. 1004 ¶¶ 5, 25). This argument fails to show how Petitioner's reading of Chen is misleading. As Petitioner argues, “Chen affirmatively discloses analyzing and determining ‘text surrounding an image’ [(Ex. 1004 ¶ 25)] and explains certain images are image links.”

Reply 10 (quoting Ex. 1004 ¶ 5 (“selecting the hotlink (often by clicking a[n] . . . image”)); citing Pet. 30–31, 48–50; Ex. 1003 ¶¶ 133, 224, 232–234, 239–240). As Petitioner further explains, a person of ordinary skill would have read both paragraphs in context and understood “text surrounding an image” includes text surrounding an image link, such as text in or near a hotlink. *See id.* (citing Pet. 30–31; Ex. 1003 ¶¶ 119, 133, 224). Chen's paragraph 5 supports Petitioner, describing a hotlink as including a marked word or image and leading to a different document via a URL: “By selecting the hotlink (often by clicking a marked word, image, or area with a pointing device, such as a mouse), the user's Web browser is instructed *to follow the hotlink (usually via a URL, frequently invisible to the user, associated with the hotlink) and read a different document.*” Ex. 1004 ¶ 5 (emphasis added). Two pages later, Chen's paragraph 25 states that “[m]ulti-modal information, in the form of text surrounding an image and some simple image features, is used in this process.” Ex. 1004 ¶ 25.

As the second example, Patent Owner points to Petitioner's quotation of Chen, “words of text surrounding and associated with each . . . hyperlink text” (Pet. 22 n.8 (quoting Ex. 1004 ¶ 101)), and asserts that Petitioner's “use of ellipses . . . fails to account for the fact that the quoted sentence is about the text feature vector—the content modality that is also treated separately from proximal information in the '475 [p]atent.” PO Resp. 52.

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Patent Owner reproduces the full quotation from Chen, as follows: “The text features include the words of text surrounding and associated with each image, the URL of the image, ALT tags, hyperlink text, and text genre (described below).” *Id.* (quoting Ex. 1004 ¶ 101). Patent Owner asserts that Chen’s showing is merely about a text feature vector, because the ’475 patent describes how “a content feature vector reflects the content of the words contained by each document or web page in the path.” *Id.* (quoting Ex. 1001, 8:60–62).

This argument does not undermine Petitioner’s showing. The argument verifies that Chen’s system analyzes “the words of text surrounding and associated with each image” and “hyperlink text.” Ex. 1004 ¶ 101; *see also* Reply 11 (asserting that Patent Owner’s “argument rests on incorrect assumptions and is mere semantics”). As Petitioner explains, Chen treats the different text features differently, without obscuring the different types of information, storing them in one or more vectors. *See id.* (stating that Chen’s paragraph 101 “describes storing each different text modality feature as a vector (resulting, for ‘each document,’ in a ‘set of distinct features’ stored in multiple (plural) ‘vectors’ (quoting Ex. 1004 ¶ 101; citing Ex. 1033 ¶ 11)). Petitioner also persuasively points out that Chen “permissively . . . stat[es that] ‘it is *possible to combine* the text, URL, inlink text, and outlink text corresponding to a document into a *single* overarching text vector’—again disclosing such features may, instead, *be determined separately from each other.*” *Id.* at 11–12 (quoting Ex. 1004 ¶ 77; citing *id.* ¶¶ 37, 49). In other words, Petitioner persuasively argues that this permissive statement about the “possibility” of using a single vector implies using multiple vectors to store text features as an alternative. *See id.*

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Even if Chen does not describe putting text from a single page into multiple vectors, nothing in challenged claims 1 and 10 requires multiple vectors, for example, a vector for multimodal information and a separate vector for proximal information for each separate page analyzed. Moreover, contrary to Patent Owner’s related arguments (PO Resp. 53), the challenged claims do not require that proximal information is a modality or is a separate modality from other claimed multi-modal information (some of which may or may not include text). *See* Reply 14 (arguing “the ’475 [patent] does not refer to proximal information as its own ‘modality’ (*see* EX1030, 14:21–22) and modalities and features are different”). Likewise, the challenged claims do not require that proximal information is a distinct textual *modality* from other text features. As Petitioner also persuasively argues, the ’475 patent contemplates that some features (or feature vectors), such as inlinks and outlinks, have the same modes (hyperlink, if non-tokenized), even though the specification includes inlinks and outlinks as multi-modal information. Reply 14 (citing Ex. 1001, 6:4–11).¹² Petitioner also points out that in Chen, “content feature vector[s], URL feature vector[s], and proximal cue feature vector[s],” are “all *text* modes” (when the system tokenizes a URL). *See*

¹² The cited passage describes combining feature vectors into a single “multi-modal vector,” which represents a “user profile”:

In various exemplary embodiments, the proximal cue feature vector, the content feature vector, the URL feature vector, the inlink feature vector, the outlink feature vector and the information need feature vector for each document or web page on the user path are combined using the document or web page path position and document access weighting. The combined multi-modal vector represents a user profile

Ex. 1001, 6:4–19.

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Reply 14 (citing PO Resp. 42 n.8; Ex. 2006, 136 n.8; Ex. 1004, Table 1); Ex. 1033 ¶ 12).

Moreover, Patent Owner does not dispute, and Petitioner shows, that Chen teaches or suggests limitation 10.2, “determine[] multi-modal information” (in the form of page URLs, inlinks, outlinks, or other features), as discussed in the previous section. Claim 6 (which depends from claim 5) requires separate vectors, but Patent Owner does not challenge Petitioner’s persuasive showing for claims 5 and 6. *See* Pet. 65–75.

Petitioner’s citation to Chen as recognizing that there “‘may be advantage[s]’ in treating different text differently” further supports Petitioner. Reply 12 (quoting Ex. 1004 ¶ 58). At the cited paragraph, Chen states that “it is . . . possible *to weight title, heading, and caption text differently than other text in a document* (e.g., by treating each occurrence of a word in a title as though it had occurred twice or three times in the text).” Ex. 1004 ¶ 58 (emphasis added). And “[a]s a general proposition, it should be recognized that *all text in a document need not be treated the same for purposes of text-based modalities; adjustments and weightings are possible and may be advantageous in certain applications.*” *Id.* (emphasis added). At the beginning of the section describing this subject, Chen describes treating text “surrounding an image” differently from other text content on a page, by limiting “[t]he scope of the surrounding text . . . [to] 800 characters preceding or following the image location.” *Id.* ¶ 51. This further shows, as Petitioner argues, that Chen’s system processes and tracks proximal information differently from other text on the page, otherwise there is no reason for Chen to specify how close the words are to an image (including an image link or hotlink). *See* Reply 12 (citing Ex. 1004 ¶ 58); Pet. 30–31

(arguing that Chen’s descriptions of breaking up text in a URL and text surrounding an image are descriptions of proximal information or would have rendered the same obvious (citing Ex. 1004 ¶¶ 5, 25, 59)).

Petitioner also persuasively argues that “Chi teaches ‘proximal information’ under the [Patent Owner’s] construction because, *e.g.*, it discloses associating proximal information with the link from which it came based on its disclosure of a ‘hyperlink topology’ ‘adjacency matrix *T*’ and calculating the scent of the link including by ‘look[ing] up the corresponding proximal cues in the *K* matrix’ for ‘each non-zero entry . . . in the *T* topology matrix.” Reply 25 n.17 (citing Ex. 1006, 3; Ex.1033 ¶ 30). Petitioner also contends that Dr. Martin admits that “Chi . . . used proximal information”). Reply 25 n.17 (quoting Ex. 2006 ¶ 162).

Patent Owner agrees that Dr. Martin testifies that “Chi . . . used proximal information,” but Patent Owner contends that it is “for a different purpose,” namely, “in the context of predicting user surfing patterns.” Sur-reply 22. Patent Owner’s argument here relates to the obviousness of combining Chi, but it does not dispute that Chi discloses proximal information under Patent Owner’s claim construction. We address the obviousness argument below.

Petitioner also persuasively replies that Patent Owner challenges only “*two* of the Petition’s Chen passages” as “not teach[ing] determining text near a link or text of the link structure” i.e., “proximal information.” Reply 8. Petitioner points to other relied-upon passages of Chen, cited in the Petition, but not challenged by Patent Owner:

Tellingly, [Patent Owner] *does not challenge most of Chen’s cited “proximal information” disclosures, including, e.g., Chen’s disclosures of analyzing “text in hyperlinks,” (EX1004,*

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[0052]), “terms in URLs . . . extracted from . . . outlinks” (*id.*, [0062]), or “outlink text” (*id.*, [0077])—all disclosing determining text of the link structure (a type of ‘proximal information’ as properly understood).

Reply 9 (citing Pet. 21–25, 30; Ex. 1003 ¶¶ 78, 116–124, 132–134, 176–182; Ex. 1001, 3:41–59, 8:31–46). At cited paragraph 52, Chen states that “images do not necessarily contain text, *but are described by text in the hypertext links and URLs that point to them*. Images containing text (such as facsimile bitmaps) can have their text extracted via known document image decoding techniques.” Ex. 1004 ¶ 52 (emphasis added).

Notwithstanding these teachings (and others noted above) in Chen, Patent Owner argues that Chen’s URL feature “relates to the document’s own URL, and not ‘information near or derived from a link that characterizes the content accessible through the link in association with that link’ (proximal information) ‘for content portions associated with the user path.’” PO Resp. 53 (citing Ex. 2006 ¶¶ 145–147; Ex. 1004 ¶ 59). The quotation above from Chen’s paragraph 52 contradicts Patent Owner’s argument by showing that Chen teaches analyzing URL text within a web page. Moreover, Petitioner clearly relies on using outlink URLs on a page “that point to” other web pages, as opposed to the URL of that page. *See* Reply 14 (arguing that “Chen’s disclosures of extracting text from URLs for outlinks (e.g., ‘outlink text,’ ‘terms in URLs . . . extracted from . . . outlinks’ and ‘text in hyperlinks’), are just some of Chen’s examples Petitioner mapped to proximal information” (citing Pet. 13, 21–25, 30–31)), 15 (arguing that “tokenized outlink text is proximal information”). As noted in the previous section analyzing limitation 10.2, the Petition points out the difference: “URL information is proximal information if text is extracted from outlinks/hyperlinks to another page,” but “URL information is multi-

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modal” and “not proximal” “if extracted from, e.g., a URL for a given content portion/webpage itself.” Pet. 21 n.7 (citing Ex. 1003 ¶¶ 60, 107 n.3).

Patent Owner also argues that “[t]he mere extraction of text from pages, even if in or near links, does not make something proximal information,” because “some association between that text and the related link or URL is required.” PO Resp. 52–53. This argument is not persuasive because it does not address Chi’s teachings as noted above and also relies on a claim construction that we do not adopt. *Supra* Section II.B.1 (Claim Construction). Chen’s proximal cues show “some association between that text and the related link or URL” by their proximity to the link. Chen’s “text vector is based on the document’s entire text content,” including “text surrounding an image in a ‘host’ HTML page” (Ex. 1004 ¶ 51), and by “text in the hypertext links and URLs that point to them” (*id.* ¶ 52).

As noted above, Petitioner also shows that it would have been obvious in view of Chen to treat proximal information separately from other textual information, whether in a single vector or multiple vectors. *See* Reply 12 (citing Pet. 36–37, 40, 66–73; Ex. 1003, ¶¶ 388, 391–392, 193, 160–162). For example, in addition to Chen’s disclosures summarized above, Petitioner notes that Chen recognizes that there “may be advantage[s]” (Ex. 1004 ¶ 58) in treating different text features differently, including Chen’s “hyperlink *text*” (*id.* ¶ 101) (proximal information). *See id.* (emphasis added) (quoting Ex. 1004 ¶¶ 58, 101; Ex. 1003 ¶ 391). Chen supports Petitioner, as noted above, stating that “[a]s a general proposition, it should be recognized that all text in a document need not be treated the same for purposes of text-based modalities; adjustments and weightings are possible and may be advantageous in certain applications.” Ex. 1004 ¶ 58.

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Patent Owner responds that the Petition’s reliance on Chen’s use of “all possible modalities” is faulty, because Chen is “about using the set of non-proximal, multi-modal information modalities discussed—text content, inlinks, outlinks, and URL—found in each of Chen, Heer, and the ’475 [p]atent.” PO Resp. 56 (citing Ex. 2006 ¶ 159; Ex. 1004 ¶ 135; Ex. 1007, 5; Ex. 1001, 6:4–10). Patent Owner contends that “Chen does not mention or contemplate any proximal information modality.” *Id.* (citing Ex. 2006 ¶ 159). For the reasons discussed above, however, Chen discloses or at least suggests using proximal information by discussing analyzing all text and images on a page, including text in or near an image link or hotlink.

Similarity Between Heer and Chen

Patent Owner argues that because Heer and Chen are similar, and because Petitioner and Dr. Turnbull admit that Heer does not disclose proximal information, it follows that Chen does not disclose proximal information. PO Resp. 53–54 (citing Ex. 1003 ¶¶ 34, 34 n.2, 48 n.3; Pet. 4 n.3). Petitioner replies that it “did not admit Heer doesn’t teach proximal information—instead, Petitioner indicated it was not contesting whether Heer does (noting PO’s position it doesn’t) since Petitioner wasn’t relying on Heer for that teaching.” Reply 15 (citing Pet. 4 n.3).

The Petition verifies that there is no admission regarding Heer. The Petition states that “Ppetitioner is not contesting Applicant’s position that Heer does not teach proximal information incorporated into a user profile clustering method.” Pet. 4 n.3; *see also* Ex. 1003 ¶ 34 (“I understand Petitioner is not contesting Applicant’s position that Heer does not teach proximal information incorporated into a user profile clustering method.”), ¶ 34 n.2 (materially the same), ¶ 48 n.3 (materially the same).

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Moreover, it is clear that Petitioner relies on Chen to disclose or suggest proximal information as discussed throughout this Final Written Decision.

View of Inventors

Patent Owner generally argues that the claimed invention was “[n]ot [o]bvious to [the i]nventors.” *See* PO Resp. 56. In particular, Patent Owner contends that determining proximal information would not have been obvious to “Heer and Chi, the authors of the Heer reference.” *See id.* at 57. For example, Patent Owner argues that “as Dr. Martin explains, ‘the idea of using “proximal information” to improve their system was clearly not obvious to them, since they did not mention it in their paper in spite of having cited other modalities such as content, URLs, inlinks, and outlinks in Heer and proximal information in the Chi (Ex. 1006) paper.’” *Id.* at 58 (emphasis added) (quoting Ex. 2006 ¶ 162). In other words, Patent Owner and Dr. Martin acknowledge that proximal information was known and used by PARC researchers, including the authors of Chi. *Id.* at 56–57 (citing Ex. 1006).¹³

This line of argument does not undermine Petitioner’s showing as summarized above, which is persuasively based on the combined teachings of the references with factual underpinnings and an articulated rationale for the combination. Patent Owner’s arguments reduce to the assertion that Petitioner does not show obviousness because there is no anticipatory reference. *See* PO Resp. 58 (“[T]he idea of using ‘proximal information’ to

¹³ Further describing Chi, Patent Owner contends that “in 2001, Ed Chi, Peter Pirolli, Kim Chen, and James Pitkow published a paper called ‘Using Information Scent to Model User Information Needs and Actions on the Web.’” PO Resp. 14.

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improve their system was clearly not obvious to them, since they did not mention it in their paper in spite of having cited other modalities such as content, URLs, inlinks, and outlinks in Heer and proximal information in the Chi (Ex. 1006) paper.” (quoting Ex. 2002 ¶ 162)). Contrary to this argument and testimony, Petitioner need not show anticipation to show obviousness.

Reply 18 (characterizing Patent Owner’s “attack [as] rest[ing] on unsupported and irrelevant conclusory assertions that combining multi-modal and proximal information can’t be *obvious* without evidence of *anticipation*”). As Petitioner also persuasively notes, “[t]he relevant question is whether the [c]laims would have been obvious to a hypothetical [person of ordinary skill in the art] presumed aware of all pertinent art.” *Id.* (citing *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007); *Amazon.com, Inc. v. Barnesandnoble.com, Inc.*, 239 F.3d 1343, 1364 (Fed. Cir. 2001) (vacating a nonobviousness determination because its reliance on an expert’s “admission” that he “personally never thought of combining . . . the prior art to come up with the claimed . . . invention . . . was erroneous as a matter of law”).

The subjective analysis by Patent Owner in the obviousness inquiry is not only “irrelevant,” relying on it would be “erroneous as a matter of law.” *See Amazon.com, Inc. v. Barnesandnoble.com, Inc.*, 239 F.3d 1343, 1364 (Fed. Cir. 2001) (“Whatever Dr. Lockwood did or did not personally realize at the time based on his actual knowledge is irrelevant. The relevant inquiry is what a hypothetical ordinarily skilled artisan would have gleaned from the cited references at the time that the patent application leading to the ’411 patent was filed.” (citing *Kimberly–Clark Corp. v. Johnson & Johnson*, 745 F.2d 1437, 1453 (Fed.Cir.1984) (discussing the origin and significance of

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the hypothetical ordinarily skilled artisan in detail)); *Ryko Mfg. Co. v. Nu-Star, Inc.*, 950 F.2d 714, 718 (Fed. Cir. 1991) (“Instead of ascertaining what was subjectively obvious to the inventor at the time of invention, the court must ascertain what would have been objectively obvious to one of ordinary skill in the art at such time.”).

More Information

Patent Owner also argues that “it is not true that more information is always better, or leads to a more accurate system, in the context of the invention.” PO Resp. 58 (citing Ex. 2006 ¶ 164). At the cited paragraph, Dr. Martin testifies that “a poorly chosen modality can offset a more accurate one.” *Id.* at 59 (quoting Ex. 2006 ¶ 164). Patent Owner relies on an example of an “Outlink modality,” which “performed more poorly than others,” according to a publication that Patent Owner refers to as “Heer and Chi’s 2002 paper” (i.e., “Heer2002”). *Id.* at 59 (citing Ex. 2018, 5, Table 1). Patent Owner also argues that “Dr. Martin explains [that] it would be ‘intuitively clear to a person of ordinary skill in the art’ that ‘[f]urther investigation would be needed to understand the cost versus benefit of incorporating a new modality.’” *Id.* (quoting Ex. 2006 ¶ 164).

These arguments support, rather than undermine, Petitioner’s showing that an artisan of ordinary skill would have been able to choose among different types of information such as proximal information to improve clustering with a reasonable expectation of success using routine methods. *See* Pet. 55–57. As the Reply states, a person of ordinary skill in the art “would have reasonably believed that adding proximal information to multi-modal would be advantageous and provide more robust results.” Reply 22.

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In support, Petitioner notes that another reference, Chi4 (Ex. 1013), which Patent Owner cites in its Response (PO Resp. 15, 67), states that for “systems and methods for predicting usage of a document collection or web site, using proximal cues would be advantageous.” Reply 22 (quoting Ex. 1013 ¶ 12; citing Ex. 1033 ¶ 23). Patent Owner replies that Petitioner fails to show how Chi4 is relevant “under the proper construction of proximal information” and citing it is untimely. Sur-reply 20 n.4. However, as Patent Owner raises Chi4 in its Response, the Reply properly responds to Patent Owner’s arguments that employing proximal information would not have been obvious. Moreover, Patent Owner characterizes Chi4 as “includ[ing] material similar to” Chi (Ex. 1006), which in turn, Patent Owner characterizes as obtaining “proximal cues that are associated with that link, and put this information into a matrix K.” PO Resp. 15 (quoting Ex. 1006, 3). In other words, Patent Owner indicates that Chi4’s proximal information, like Chi’s, satisfies Patent Owner’s construction of proximal information. *See id.*

Petitioner also points to Chi as “disclos[ing] using multimodal information in addition to proximal information to satisfy a user’s informational needs.” Reply 22 (citing Ex. 1006, 3 & n.3; Ex. 1003 ¶ 139; Ex. 1033 ¶¶ 18, 24, 25). Petitioner notes that Heer similarly discloses “utilizing all available information.” *Id.* (quoting Ex. 1007, 3).

Similarly, the Petition quotes Chi as disclosing that “users make navigational choices not randomly, but based on some rationale,” one of which is using “proximal cues (snippets; graphics) to assess the distal content (page at the other end of the link).” Pet. 16 (quoting Ex. 1006, 1). The Petition states that “Chen discloses gathering information about web

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pages based on a user's prior browsing behaviors, and, *inter alia*, clustering users based on that information,” where “Chen states that it is ‘desirable to be able to exploit and combine information available from all possible modalities.’” *Id.* at 31 (quoting Ex. 1004 ¶ 135; citing *id.* ¶¶ 22, 24, 34, 135, 165).

The Petition persuasively quotes Chen as stating that “[i]t is desirable to be able to exploit and combine information available from all possible modalities” (Ex. 1004 ¶ 135) and “[a]ny type of information that is available about users is collected” and it is “useful to collect information on . . . the text content, inlinks, outlinks, and URLs of these pages [that the users access].” Pet. 22 & n.8 (alteration in original) (quoting Ex. 1004 ¶ 165). Petitioner also persuasively quotes Chen as using “words of text surrounding and associated with each . . . hyperlink text,” and argues that it would have been “obvious, advantageous, and routine to implement Chen’s collection use analysis (‘CUA’) technique.” *Id.* (quoting Ex. 1004 ¶ 101). The Petition persuasively reasons that it would have been “obvious and straightforward to implement Chen’s CUA techniques,” and to implement Chen’s “clustering using proximal information,” using “Chi’s advantageous teachings of proximal cues to improve the predictive power of the system based on this additional information being gathered from visited pages.” *See id.* at 32.

Accordingly, based on the foregoing discussion, Petitioner shows that an artisan of ordinary skill would have expected and known that proximal information improves clustering, whereas Patent Owner argues that all types of information do not improve clustering, which does not undermine Petitioner’s showing.

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It is worth noting that none of the challenged claims require that adding proximal information must improve accuracy. *See In re Self*, 671 F.2d 1344, 1348 (CCPA 1982) (“Many of appellant's arguments fail from the outset because . . . they are not based on limitations appearing in the claims.”). As the specification describes and as noted above, for example, textual items in a proximal link such as “www” and “com” do not appear to provide specific or accurate information about content at a link, yet the ’475 patent describes including such words as proximal cues, further indicating that the argued accuracy is not a claim feature. *See supra* Section I.B (describing the following exemplary link on a web page, <http://www.xerox.com/products/support/index.html>, wherein “the words http, www, xerox, com, products, support and index are considered as proximal cue words for” that link (quoting Ex. 1001, 3:55–59)). As also found above, Patent Owner argued during the Oral Hearing that there is no lower threshold for proximal words’ accuracy in characterizing distal content. *See supra* Section II.B.1 (Tr. 40:1–6).

Moreover, the ’475 patent describes weighting proximal information words in a link, but most of the challenged claims do not recite any weighting. Further, challenged claims 6 and 15, which require weighting multi-modal information and proximal information, do not recite a specific algorithm as to how to weight the them. Therefore, even if the disclosed system weights all the proximal cue words in a link, all of the challenged claims are broad enough to weight even descriptive words (which the claims do not require) such as “products” and “xerox” with zero or little weight, further indicating the claims do not require a gain in accuracy (assuming for

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the sake of argument that proper weighting of proximal terms produces accuracy in clustering).¹⁴

In any event, even if using outlinks raises accuracy concerns, contrary to Patent Owner’s arguments, Petitioner does not rely on using outlinks as proximal information, as indicated above. *See* PO Resp. 60 (arguing that Heer and Chi’s 2002 paper (Ex. 2018 (“Heer2002”)) shows “how additional modalities could be a negative” and “using the Outlink modality decreased performance” (citing Ex. 2018, 5)). As Petitioner argues, a person of ordinary skill “would have reasonably believed that adding proximal information to multi-modal would be advantageous and provide more robust results.” Reply 22 (citing Ex. 1004 ¶¶ 171, 135, 165; Ex. 1003 ¶¶ 123, 134, 139, 182; Ex. 1013 ¶ 12; Ex. 1033 ¶¶ 15–16, 18, 22–26; Ex. 1006, 3 & n.3; Ex. 1007, 3).

Patent Owner’s reliance on the lack of accuracy regarding outlinks attempts to conflate outlinks with proximal information. This does not undermine Petitioner’s showing, which relies on proximal information, and separately, multi-modal information. As Petitioner essentially argues, Heer2002 also distinguishes the two. *See* Reply 21. In particular, Petitioner

¹⁴ Chen verifies certain words contain little or no informational value and appropriate weighting accounts for that lack of value:

[V]ectors can be calculated for a document’s URL. . . . [T]he exemplary URL ‘http://www.server.net/directory/file.html’ includes seven terms: “http,” “www,” “server,” “net,” “directory,” “file,” and “html.” *As with the text feature, some of those terms contain little or no informational value* (“http,” “www,” “net,” and “html,” in this example). Accordingly, the token frequency weight and inverse context frequency weight embedding is appropriate here, as well.

Ex. 1004 ¶ 59.

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argues that “Heer2002 suggests tokenized URLs performed *well*,” “Chen’s outlink *text* is ‘tokenized’ into individual words,” but “Heer2002’s outlinks” are not tokenized “and thus *aren’t proximal information*.” *Id.* (citing Ex. 2018, 3, 5, 7; PO Resp. 27).

It is not entirely clear on this record how Heer2002 analyzes outlinks. However, Heer2002 supports Petitioner’s characterization because it states that it tokenizes URLs (where a URL is the URL of a visited page), and it does not state that it tokenizes outlinks. Ex. 2018, 3. Heer2002 creates a content vector, which is a “weighted keyword vector containing all of the words on that page.” *Id.* Heer2002 clearly analyzes textual content on a page and distinguishes that from outlinks. *See id.* at 4 (reporting that “[o]utlink modality performed more poorly than others” and “[c]ontent modality performed best.”). Heer2002 also states that “[t]he [o]utlink vector of a page describes which pages are reachable *from* this page,” and that “all schemes involving the [o]utlink modality performed more poorly than others.” Ex. 2018, 3, 5. The ’475 patent verifies that “an outlinks feature vector indicates outward connections or outlinks for each document or web page along the selected user path.” Ex. 1001, 9:9–13. Dr. Martin agrees that “outlinks” are “links pointing from the pages elsewhere.” Ex. 2006 ¶ 42. Assuming that outlinks fail to provide accurate information for clustering is immaterial to Petitioner’s showing, because Petitioner relies on processing words near outlinks and/or tokenizing outlinks for the limitation at issue here, “determining proximal information.”

In other words, as discussed above (Section II.B, Claim Construction), an outlink is not the same as proximal information, even if there is some overlap in that both involve links pointing to other web pages, according to

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the '475 patent specification. *See, e.g.*, Ex. 1001, 8:31–46 (“[P]roximal cue words include for example, the text of the link structure” and “[t]ext surrounding the link structure.”); *compare id.* at 9:11–13 (proximal information), *with id.* at 8:31–46 (outlinks). Unlike a proximal link, the '475 patent does not describe analyzing text *surrounding* a link to determine an outlink. It is not entirely clear how the '475 patent tracks or determines outlinks, but as noted above, Dr. Martin contends that “outlinks” are simply “links pointing from the pages elsewhere.” Ex. 2006 ¶ 42. In addition, none of the challenged claims require combining outlinks and proximal information. The only claim that requires “outlinks,” claim 14 (and claims 15–18 depending therefrom), recites, as “at least one of” of several options, “determine[] outlinks of content portions associated with the user path.”¹⁵ However, simply determining an outlink (under that option) is broad enough to mean detecting its presence on a visited page and/or possibly determining a page connection related to that link.

Under this background, and in distinction to outlinks, Heer2002 “summarize[s]” by observing that “crawling the site and *using the page content to help cluster user sessions greatly increases algorithm accuracy. This is far from surprising; intuitively, the words that the user sees during each session are good indicators of their information need.*” Ex. 2018, 5

¹⁵ Claim 14, which depends from claim 10, does not *require* determining both an outlink feature and proximal information. Rather, it recites “[t]he system of claim 10, wherein the multi-modal information determining circuit includes *at least one of* a content feature determining circuit that determines contents portions associated with the user path, a [URL] feature determining circuit . . . an inlink feature determining circuit . . . and an outlink determining circuit that determines outlinks of content portions associated with the user path.”

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(emphasis added). This further signifies that the method as described in Heer2002 does not analyze text (or at least text that a user sees) associated with an outlink.

In other words, according to Patent Owner’s cited literature, outlinks, which “describe[] which pages are reachable” and do not necessarily involve ascertaining “content words” that a user sees on a web page, unsurprisingly are not useful in providing accurate clustering. *See* Ex. 2018, 3, 5. In contrast, words on a given page visited by a user include words around a link as a subset thereof, so they are some of “*the words that the user sees during each session [and unsurprisingly] are good indicators of their information need.*” *See id.* at 5 (emphasis added).

User Path

Patent Owner also argues that Petitioner “provides no explanation as to how Chen teaches the entire limitation—determining proximal information ‘for content portions associated with the user path.’” PO Resp. 53 (citing Pet. 21–25, 30–32, 39–40; Ex. 2006 ¶¶ 148–149, 153). Petitioner replies that “the Petition explains” that a person of ordinary skill in the art “would have found it obvious to implement Chen’s techniques (including Chen’s collecting proximal information from webpages) using **Pitkow’s** teachings of analyzing information from webpages along particular user paths.” Reply 15 (citing Pet. 28–30, 39–40; Ex 1003 ¶¶ 128–130). The Petition generally explains that “Pitkow uses a path-determining algorithm called Longest Repeating Subsequences (‘LRS’) to identify user paths while retaining robustness against noise resulting from erroneous navigation.” Pet. 15 (citing Ex. 1005, 7 (§ 5), 8 (§ 5.1); Ex. 1003 ¶ 83). Petitioner also shows how Chen and Pitkow are similar in analyzing and tracking the

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information needs of users. *See id.* at 27–28. For example, Petitioner notes that “Chen’s ‘user’s browsing habits’ and Pitkow’s ‘user paths’ (where a given user path comes from a single ‘user session’ and is selected using LRS) include the same type of information.” *Id.* at 27 (citing Ex. 1004 ¶ 130; Ex 1005, 4).

Petitioner provides several reasons to combine Pitkow’s user path teachings with Chen’s clustering techniques, including an increase in efficiency, better predictions, less memory, and less noise. *See id.* For example, Petitioner explains that a person of ordinary skill in the art

would recognize that using Pitkow’s teachings of user paths (selected using LRS) within a user session would advantageously allow Chen to apply its clustering techniques such that, e.g., they employ actual surfing sequences in predicting sites of interest and are “robust to noise” by eliminating extraction of information from websites on paths resulting from erroneous navigation (which would not to be part of an LRS), which would lead to better recommendations. EX1005, 6. The resulting system would be more efficient (processing only content portions associated with information-rich patterns) and would be less expensive because it would require less memory.

Id. at 29.

Patent Owner does not address Petitioner’s showings based on Pitkow in its Response. Instead, in its Sur-reply, Patent Owner contends that Petitioner’s “citation to Pitkow for these limitations was for the proposition that ‘Pitkow discloses using longest repeating subsequence (see cl.10.pre) to select a plurality of user paths (see cl.10.pre).’” Sur-reply 13 (citing Pet. 39). Patent Owner also argues that the Petition “said nothing about how proximal information is determined ‘for content portions associated with the user path.’” *Id.* at 14.

This argument is unavailing because Petitioner does not rely on Pitkow to teach proximal information. As explained throughout the Petition, Petitioner relies on Chen's proximal information as supplemented by Chi's proximal information selected from content portions. The Petition states that it would have been "obvious and routine to implement Chen's clustering techniques by selecting a plurality of user paths in a collection of content portions and analyzing content portions associated with each user path, as taught by Pitkow." Pet. 29. As discussed above, Petitioner includes Chen's proximal information, including "hotlink . . . via a URL," "links," "text surrounding an image," "*terms in URLs . . . extracted from . . . outlinks*," etc. as part of Chen's analyzed content portions. *Id.* at 24 (quoting Ex. 1004 ¶¶ 5, 25, 42). Patent Owner's arguments seek to isolate Chen's proximal information teachings related to tracking content information on web pages from Pitkow's similar teachings of tracking web pages visited along a user path. *See id.* at 28–30, 39–40. The arguments also do not address Petitioner's reasons for combining related teachings from the two references, as summarized above. *See id.* at 28.

Patent Owner also asserts that it would not have been obvious to modify Chen based on Chi's teachings of using and determining proximal information, because "Chi deals with proximal cues/information in a different context (predicting user surfing patterns given what the user is searching for without consulting any actually observed user path)." PO Resp. 62 (citing Ex. 2006 ¶ 172). Petitioner persuasively replies that it "relies on Chi's disclosure of determining proximal information for a collection of web pages (Pet. 39–40; *compare* EX1003 ¶¶ 188–191, *with id.*

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¶ 187), combined with Pitkow for the user path.” Reply 25 (citing Pet. 20–21, 25, 31–32, 39–40; Ex. 1003 ¶¶ 125–131, 135–141, 187–191).

Patent Owner’s assertion that Chi predicts user paths “without consulting any actually observed user path” does not address the Petition’s showing that Chi not only determines proximal information to satisfy an information need, but Chi consults an actually observed path by observing a user’s traversal history through a hypertext collection to determine the information need of the user. Describing Chi, the Petition states that “Chi describes computational methods for understanding user needs and actions, noting ‘users typically forage for information *by navigating from page to page along Web links. Their surfing patterns or actions are guided by their information needs.*’” Pet. 17 (emphasis added) (quoting Ex. 1006, 1).

The Petition also states that “Chi discloses using information about *visited web page content* and linkage topology (including proximal information) *to similarly satisfy a user’s informational needs*, ‘suggesting information pieces to users *based on a user’s traversal history.*’” Pet. 31–32 (emphasis added) (quoting Ex. 1006, 2) (citing Ex. 1006, 3 (“proximal cues”)). The assertion of “*similarly satisfy a user’s informational needs*” refers to Chen’s similar goal, as explained further below. *See id.* Chi supports Petitioner’s assertion of basing information needs on a user’s traversal history in several places. *See, e.g.,* Ex. 1006, 1 (quoted above), 2 (quoted above), 4 (“The question is, therefore, given a traversal path through a hypertext collection, what can we say about the information need expressed by that traversal path?”).

To further support its rationale for combining the teachings, Petitioner persuasively quotes Chi4 as stating “that for ‘systems and methods for

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predicting usage of a document collection or web site, *using proximal cues would be advantageous.*” Reply 22 (emphasis added) (quoting Ex. 1013 ¶ 12) (citing Ex. 1033 ¶ 23). Petitioner also notes that “Chi . . . discloses using multimodal information in addition to proximal information to satisfy a user’s informational needs.” *Id.* (Ex. 1006, 3 & n.3; Ex. 1003 ¶ 139).¹⁶

As indicated above, Petitioner shows that one of Chen’s goals is similar to Chi’s, namely to satisfy a user’s information needs. For example, the Petition characterizes Chen as follows: “Chen discloses a framework for collecting information related to a user’s browsing history/behaviors and applying techniques to the collected information to ‘cluster[] documents and users (collectively objects)’ and ‘advantageously employ[] that framework to enhance browsing, searching, retrieving and recommending content.’” Pet. 11 (emphasis added) (quoting Ex. 1004 ¶¶ 19, 80) (citing Ex. 1004 code (57), ¶¶ 6, 7, 9, 14, 24, 31, 34, 36, 80, 130–135). As other examples, the Petition quotes Chen for its disclosure that “handling *multi-modal information* . . . users are assigned to similar clusters” (quoting Ex. 1004 ¶ 18) and “*recommending documents based on user clusters’ prior browsing behaviors*” (quoting *id.* ¶ 24). Pet. 24.

Therefore, Petitioner persuasively shows that Chi and Chen have similar goals of recommending information based on similar techniques

¹⁶ Patent Owner argues that the Petition does not rely on Chi as disclosing multi-modal information, and this renders the Reply argument untimely. Sur-reply 17 n3. This argument is unavailing. As noted above, the Petition states that “Chi discloses using information about visited web page *content* and linkage topology (*including proximal information*).” Pet. 31–32 (emphasis added). Moreover, the Reply properly shows how Chen and Chi are similar in reply to Patent Owner’s argument that Chi refers to proximal information “in a different context.” PO Resp. 62.

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including analyzing a user's traversal history to determine information needs. *See* Pet. 12, 24, 26–27, 30–33. In other words, Petitioner persuasively shows that Chi suggests using proximal information on the user path of Chen as modified by Pitkow to provide better recommendations of information to satisfy a user's needs. *See id.*

Patent Owner also argues that a person of ordinary skill would not have been motivated to add Chi's proximal information to Chen because “adding modalities was not obvious, and instead required work that a POSITA would not have undertaken.” PO Resp. 62. However, for reasons similar to those explained above, Petitioner shows that a person of ordinary skill in the art would have recognized that adding proximal information, which is similar to, or a subset of, information on a page known to be helpful, would have been useful, straightforward, and predictable, for obtaining better clustering results and to satisfy a user's informational needs. *See* Reply 22–23; Pet. 31–32. As Petitioner also argues, “Chen's reference to ‘all possible’ modalities and collecting ‘[a]ny type of information that is available’ was not limited to those Chen explicitly mentioned.” Reply 26 n.18 (citing Reply 19–23; Ex. 1004 ¶¶ 135, 165, 171; Pet. 31, 71; Ex. 1003 ¶¶ 123, 134–141; Ex. 1033 ¶ 15).

Patent Owner also argues that “Dr. Martin explained why no [reasonable] expectation [of success] was shown or explained.” Sur-reply 21 (citing Ex. 2006, ¶¶ 164–167). To support this argument, Patent Owner asserts that Petitioner's “suggestion that adding proximal information to Chen (which [Petitioner] does not even allege is done using properly-construed proximal information) would not be an additional modality highlights [Patent Owner's] point that [Petitioner] has eviscerated any

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meaning of the ‘determin[ing/es] proximal information’ limitation and treats proximal information as mere multi-modal information.” *Id.* This argument fails because, according to the ’475 patent, proximal information is a subset of text on a page, namely text in or near a link, as explained above. As also explained above, Petitioner shows that it would have been obvious and routine in view of Chi and Chen, to strip words in or near a link, and store those words (which likely accurately describe content on a distal link), in order to combine them separately with other content words on a page (or other modalities), in a predictable fashion (i.e., with a reasonable expectation of success) to better cluster users and deliver information according to the information needs of a clustered user in Chen’s system. *See* Pet. 30–32 (citing Ex. 1003 ¶¶ 135–141); Reply 23–24 (arguing persuasively that “Chen was already doing the very type of processing required, and any additional processing would be, at most, minimal”) (citing Ex 2018, 6; Ex. 1033 ¶¶ 16, 28–29).

Based on the record, including after consideration of Patent Owner’s arguments with respect to secondary considerations of nonobviousness as discussed further below, we determine that Petitioner persuasively shows that the combination of Chen, Pitkow, Chi, and Heer, with or without the added teachings of Cooke, teaches limitation 10.3.

v. Limitation 10.4

Limitation 10.4 recites “a similarity determining circuit that combines the multimodal information for content portions and the proximal information for content portions associated with the user path to form a user profile having a unified representation.” Pet. 40–41 (footnote omitted). Petitioner relies partly on its showing with respect to the preamble and

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limitations 10.1 and 10.3, wherein Chen discloses combining all manner of information, including multi-modal information, and at least suggests combining proximal information, and Pitkow, Chi, and Heer supplement Chen's teachings. *See id.*

Petitioner also contends as follows:

To the extent . . . a user profile with a unified representation . . . is not satisfied by Chen in view of Pitkow . . . , this would have been obvious based on Chen in view of Pitkow and Heer (and Chi, to the extent it is argued Chen does not disclose using proximal information). Chen in view of Pitkow renders obvious clustering users based on information in a user path. *See* cl.1[pre]. Like Chen, Heer also addresses clustering of users based on multi-modal information. EX1004, [0019]; EX1007, 8. Chen discloses clustering users based on information extracted from accessed web pages. EX1004, Abstract, [0006]–[0007], [0014], [0024], [0130]–[0135]. Heer discloses using information associated with user paths to form user profiles having a unified representation. EX1007, 1, 5, Fig. 1. POSITA would have . . . found it obvious . . . to implement Chen's CUA and clustering of users using Heer's advantageous express teachings of a user profile having a unified representation (e.g., a single unified vector) so that each user could beneficially be represented by a vector, which provides a convenient mathematical form for comparing that user's vector to other users' vectors[] and clustering users by similarity. POSITA would have found it obvious . . . particularly in view of . . . the use of combined vectors in Chen (EX1004, [0049], [0067], [0072] ("larger vector"), [0077], [0130]–[0135], [0171] ("information . . . combined"))[] and clear this would . . . yield predictable results[.] EX1003, ¶207.

Pet. 42–43 (emphasis omitted).

Patent Owner does not separately address Petitioner's cited teachings and rationale. Instead, Patent Owner relies on its arguments addressed above that "none of [Petitioner's] asserted prior art . . . discloses or renders obvious the pre-requisite 'determin[ing/e] proximal information'

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limitations.” PO Resp. 63. Patent Owner also asserts that a person of ordinary skill in the art “would not have been motivated to modify Chen to combine multi-modal information with additional modalities” because “in the context of Chen, adding modalities was not obvious.” *Id.* at 63–64.

These arguments are not persuasive for reasons similar to those discussed above regarding limitation 10.3, “determine proximal information.” In addition, the arguments do not address Petitioner’s persuasive reasons, as outlined above, for combining proximal information with multi-modal information. For example, Petitioner persuasively shows that it would have been obvious in view of Chen and Heer to combine the different types of information into a single vector to facilitate a convenient mathematical mechanism to compare clustered users with predictable results. *See id.*

Based on the record, including after consideration of Patent Owner’s arguments with respect to secondary considerations of nonobviousness as discussed further below, we determine that Petitioner persuasively shows that the combination of Chen, Pitkow, Chi, and Heer, with or without the added teachings of Cooke, teaches limitation 10.4.

vi. Limitation 10.5

Limitation 10.5 recites “a cluster and similarity measure determining circuit that clusters multi-modal information and proximal information of user profiles based on similarity.” Pet. 43–44.

Petitioner relies on its showing for limitation 10.4, stating as follows:

As discussed above (cl.10.4), it would have been obvious to form a user profile having a unified representation Further, Chen discloses clustering information of user profiles based on the similarity. EX1004, Abstract, [0006]–[0007], [0014], [0020], [0024], [0030], [0077], [0130]–[0135]. Thus, the

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. . . combinations of art . . . render[] obvious clustering user profiles having a unified representation. *See* cl.10.4; EX1003, ¶218.

Pet. 45 (emphases omitted).

Patent Owner does not separately address Petitioner’s cited teachings and rationale. Patent Owner instead relies on its arguments addressed above that “none of [Petitioner’s] asserted prior art . . . discloses or renders obvious the pre-requisite ‘determin[ing/e] proximal information’ limitations or ‘combing[ing/e]’ limitations. PO Resp. 64. Patent Owner also asserts that a person of ordinary skill in the art “would not have been motivated to modify Chen to combine multi-modal information with additional modalities” because “in the context of Chen, adding modalities was not obvious.” *Id.* at 63–64.

These arguments are not persuasive for reasons similar to those discussed above regarding limitation 10.3 “determine proximal information,” and limitation 10.4, “combine[] the multimodal information . . . and the proximal information.” In addition, the arguments do not address Petitioner’s persuasive reasons, as outlined above, for combining proximal information with multi-modal information. For example, Petitioner persuasively shows that it would have been obvious in view of Chen and Heer to combine the different types of information into a single vector to facilitate a convenient mathematical mechanism to compare clustered users and that doing so would have achieved predictable results. *See* Pet. 42–43.

Based on the record, including after consideration of Patent Owner’s arguments with respect to secondary considerations of nonobviousness as discussed further below, we determine that Petitioner persuasively shows

that the combination of Chen, Pitkow, Chi, and Heer, with or without the added teachings of Cooke, teaches limitation 10.5.

vii. Secondary Considerations of Nonobviousness

Objective evidence of non-obviousness “may often be the most probative and cogent evidence in the record” and “may often establish that an invention appearing to have been obvious in light of the prior art was not.” *Transocean Offshore Deepwater Drilling, Inc. v. Maersk Drilling USA, Inc.*, 699 F.3d 1340, 1349 (Fed. Cir. 2012) (quoting *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 1538 (Fed. Cir. 1983)). Objective evidence may include long-felt but unsolved need, failure of others, unexpected results, commercial success, copying, licensing, and praise. *See Graham*, 383 U.S. at 17–18; *Leapfrog Enters., Inc. v. Fisher–Price, Inc.*, 485 F.3d 1157, 1162 (Fed. Cir. 2007).

“For objective evidence of secondary considerations to be accorded substantial weight, its proponent must establish a nexus between the evidence and the merits of the *claimed invention*.” *Wyers v. Master Lock Co.*, 616 F.3d 1231, 1246 (Fed. Cir. 2010)). “A nexus may not exist where, for example, the merits of the claimed invention were ‘readily available in the prior art.’” *ClassCo, Inc. v. Apple, Inc.*, 838 F.3d 1214, 1220 (Fed. Cir. 2016) (quoting *Richdel, Inc. v. Sunspool Corp.*, 714 F.2d 1573, 1580 (Fed. Cir. 1983)). “Additionally, there is no nexus unless the evidence presented is ‘reasonably commensurate with the scope of the claims.’” *Id.* (quoting *Rambus Inc. v. Rea*, 731 F.3d 1248, 1257 (Fed. Cir. 2013)). “There is no hard-and-fast rule for this calculus, as ‘[q]uestions of nexus are highly fact-dependent and, as such are not resolvable by appellate-created categorical rules and hierarchies as to the relative weight or significance of proffered

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evidence.” *Id.* at 1221–1222 (quoting *WBIP, LLC v. Kohler Co.*, 829 F.3d 1317, 1331 (Fed. Cir. 2016) and reasoning that “because claims 2 and 14 are considerably broader than the particular features praised in the articles, it would be reasonable for the Board to assign this evidence little weight”).

“[A] patentee is entitled to a rebuttable presumption of nexus between the asserted evidence of secondary considerations and a patent claim if the patentee shows that the asserted evidence is tied to a specific product and that the product ‘*is the invention disclosed and claimed.*’” *Fox Factory, Inc. v. SRAM, LLC*, 944 F.3d 1366, 1373 (Fed. Cir. 2019) (quoting *Demaco Corp. v. F. Von Langsdorff Licensing Ltd.*, 851 F.2d 1387, 1392 (Fed. Cir. 1988)). Presuming nexus is not appropriate “[w]hen the thing that is commercially successful is not coextensive with the patented invention.” *Id.* at 1373 (quoting *Demaco*, 851 F.2d at 1392). Presuming nexus may be appropriate if “the unclaimed features amount to nothing more than additional insignificant features.” *Id.* at 1374.

“A finding that a presumption of nexus is inappropriate does not end the inquiry into secondary considerations”; rather, “the patent owner is still afforded an opportunity to prove nexus by showing that the evidence of secondary considerations is the ‘direct result of the unique characteristics of the claimed invention.’” *Fox Factory*, 994 F.3d at 1374–75 (quoting *In re Huang*, 100 F.3d 135, 140 (Fed. Cir. 1996)). In other words, “[w]ithout the presumption, a patentee may establish nexus by showing the secondary considerations evidence is the ‘direct result of the unique characteristics of the claimed invention,’” *Magseis FF LLC v. Seabed Geosolutions (US) Inc.*, 860 F. App’x 746, 751 (Fed. Cir. 2021) (not for publication) (quoting *Huang*, 100 F.3d at 140), “rather than a feature that was ‘known in the prior

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art,”” *id.* (quoting *Ormco Corp. v. Align Tech., Inc.*, 463 F.3d 1299, 1312 (Fed.Cir.2006)).

Recently, in *Zaxcom*, the Federal Circuit indicated that *Fox Factory*’s “coextensiveness” requirement is pertinent to the “commensurate in scope” standard regarding the “presumption of nexus.” *See Zaxcom, Inc. v. Lectrosonics, Inc.*, 2022 WL 499843, at *2 (Fed. Cir. 2022). Specifically, *Zaxcom* held that “the Board determined that *Zaxcom*’s evidence of industry praise and long-felt need was entitled to a *presumption of nexus*, noting that these indicia were *commensurate in scope* with the claims as now narrowed, . . . a *determination that comports with the legal standards for a presumption.*” *Id.* (emphasis added) (citing *Fox Factory*, 944 F.3d at 1373; *Polaris Indus., Inc. v. Arctic Cat, Inc.*, 882 F.3d 1056, 1072 (Fed. Cir. 2018)).

Several cases prior to *Fox Factory* address the commensurate in scope requirement, without specifically addressing the presumption of nexus. Together, the cases suggest that coextensiveness, or the reasonably commensurate in scope requirement, is not met when significant unclaimed features exist. For example, in *MeadWestVaco Corp. v. Rexam Beauty and Closures, Inc.*, 731 F.3d 1258, 1264 (Fed. Cir. 2013), the court held that the district court erred by considering “secondary considerations of non-obvious [that] involved only fragrance-specific uses, but the claims now at issue [i.e., claims 15 and 19] are not fragrance-specific.” The district court erred because it “credited evidence advanced to show long-felt need and commercial success specific to the perfume industry” but some claims at issue “are not limited to fragrance-specific claims.” *See id.* at 1264–65 (reasoning that “objective evidence of non-obviousness must be

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commensurate in scope with the claims which the evidence is offered to support”) (quoting *Ayst Techs., Inc. v. Emtrak, Inc.*, 544 F.3d 1310, 1316 (Fed. Cir. 2008); *see also In re Law*, 303 F.2d 951, 954 (CCPA 1961) (“Thus, assuming the affidavits are a proper showing of commercial success, they do not show commercial success of dockboards covered by the appealed claims which are not limited to the bead of claim 13.”); *In re Tiffin*, 448 F.2d 791, 792 (CCPA 1971) (finding commercial success and long-felt need with respect to “ ‘cups’ used in vending machines” and “agree[ing] with “[t]he solicitor’s position . . . that the objective evidence of non-obviousness is not commensurate with the scope of claims 1–3 and 10–16, reciting ‘containers’ generally, but establishes non-obviousness only with respect to ‘cups’ and processes of making them”).¹⁷

Patent Owner contends that “[s]everal secondary considerations are relevant here.” PO Resp. 66 (citing Ex. 2006 ¶ 178). Patent Owner asserts that these secondary considerations are unexpected results, long-felt need and failure of others, and industry praise. *See id.* at 66–67.

Patent Owner first contends that “the inventors’ results were unexpected and resolved an ongoing need for a better solution.” PO Resp. 66. Patent Owner contends that “no one had previously thought to combine proximal information with multi-modal information for user session clustering as the inventors did.” *Id.* (citing Ex. 2006 ¶ 143). To support its arguments of secondary considerations, Dr. Martin and Patent

¹⁷ To the extent the “commensurate in scope” cases are not directly on point as to presumption of nexus (notwithstanding the indication in *Zaxcom* that they are), we cite them to show that under similar reasoning, Patent Owner fails to show a presumption of nexus or a nexus, or at most shows a weak nexus.

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Owner rely on Exhibit 2018 (Heer2002), and Exhibit 2014, entitled “Invention Proposal,” a proposal submitted by the inventors of the ’475 patent to PARC (signed by the inventors on January 11, 2002, about 11 months before the filing date of the ’475 patent). *See id.* at 65 (citing Ex. 2006 ¶ 178; Ex. 2014, 2, 5; Ex. 2018, 5); Ex. 2003 ¶ 178 (citing Ex. 2014, 2, 5; Ex. 2018, 5).

Petitioner replies with respect to unexpected results that Patent Owner “never identifies the closest art, and does not address how ’475 [patent’s] combination of proximal and other multi-modal information purportedly produced unexpected results.” Reply 27 (emphasis omitted). Petitioner also argues that the record does not support the argument that “no one had previously thought [of,] combin[ing] proximal information with multi-modal information,” and in any case, this argument “says nothing about unexpected results.” *Id.*

Petitioner’s points are persuasive. Patent Owner’s arguments do not account for the knowledge of the artisan of ordinary skill involved in an obviousness inquiry. Moreover, the Invention Proposal states that “the basic idea is that *terms found in and around the links actually traversed by the user* are more likely to represent the actual interests of the user.” Ex. 2014, 2 (emphasis added). However, Dr. Martin concedes that “in the late 1990s, a person of ordinary skill in the art would understand well that information that they put around a link on a web page is information that a user of the web page would use in deciding whether to follow the link or not.” Ex. 1030, 87:2–8. Dr. Martin also admits that “in the late 1990s, . . . web page designers would often attempt to [surround] links that they put in web pages *with information that concerns the links.*” *Id.* at 85:15–19 (emphasis

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added). In addition, Heer2002 shows that using content words in general (which includes content words near or around a link) to obtain accurate clustering results is “*far from surprising*; intuitively, the words that the user sees during each session are good indicators of their information need.” Ex. 2018, 5 (emphasis added).

Additionally, it is not clear what specific “unexpected results” Patent Owner relies upon. Patent Owner argues that “as the group found over the years, . . . not all information was actually helpful (e.g., Ex. 2018 at 5), and so it took even more time and work to realize that proximal information was helpful (as noted in the inventors’ invention disclosure, Ex. 2014 at 2, 5).” PO Resp. 65. But as indicated above and below, using content words (which include words near a link) to obtain accurate clustering results was not surprising. Therefore, little or no evidence exists to support the conclusory allegation of unexpected results. *See In re Wood*, 582 F.2d 638, 642, 199 USPQ 137, 140 (CCPA 1978) (“Mere lawyer’s arguments and conclusory statements in the specification, unsupported by objective evidence, are insufficient to establish unexpected results.”).

In addition, Patent Owner admits that using and storing proximal words to predict surfing patterns was known as evidenced by Chi (Ex. 1006). *See* PO Resp. 15 (noting that Chi’s “authors ‘obtain[ed] the proximal cues that are associated with that link, and put this information into a matrix *K*’” (quoting Ex. 1006, 3) and “used that information to predict user surfing patterns”). In its Sur-reply, Patent Owner contends that “Chi’s proximal information teachings relate to predicting user surfing patterns and are different than those required by the ’475 [patent].” Sur-reply 17.

However, even though Chi relates proximal cues and predicting surfing patterns, as Patent Owner also notes, Chi states that “users typically forage for information by navigating from page to page along Web links.” Ex. 1006, 2; PO Resp. 15 (quoting Ex. 1006, 2). As Patent Owner also notes, Chi further states that “[t]he content of pages associated with these links is usually presented to the user by some snippets of text or graphic. Foragers use these proximal cues (snippets; graphics) to assess the distal content (page at the other end of the link).” Ex. 1006, 2; PO Resp. 15 (quoting Ex. 1006, 2).

As found above, Chen is similar to Chi, where both involve traversal of a path to determine users’ information needs. *See supra* Section III.D.4.a.iv. Petitioner describes Chi as “disclos[ing] using information about visited web page content and linkage topology (including proximal information) to similarly satisfy a user’s informational needs, ‘suggesting information pieces to users based on a user’s traversal history.’” Pet. 31 (quoting Ex. 1006, 2. Petitioner describes Chen similarly as “disclos[ing] a framework for collecting information related to a user’s browsing history/ behaviors and applying techniques to the collected information to ‘cluster[] documents and users (collectively objects)’ and ‘advantageously employ[] that framework to enhance browsing, searching, retrieving and recommending content.’” *Id.* at 11 (citing Ex. 1004, code (57), ¶¶ 6, 7, 9, 14, 24, 31, 34, 36, 80, 130–135).

In other words, both references involve similar techniques of analyzing browsing behavior (traversal history) and collecting information to satisfy a user’s information needs. *See* Pet. 13 (discussing Chen’s use of page information to cluster users (citing Ex. 1004 ¶ 31)), 31 (similar); Reply

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28 n.19 (arguing that “it was known to cluster user sessions using information on web pages before [the] ’475 [patent]” (citing Pet. 3–4; Ex. 1012, 2, 8; Ex. 1003 ¶¶ 32–34, 50–55; Ex. 2006 ¶¶ 71, 88, 90)); Ex. 1003 ¶ 33 (noting that Chen discloses “clustering documents and users” (quoting Ex. 1004 ¶ 80), and “[i]f page usage is the primary information collected about users . . . then it is appropriate to cluster users via the mediated representation of users by way of various document features” (quoting *id.* ¶ 166)); Ex. 1004 ¶ 164 (“Pages that were accessed by the users in the assigned cluster are then recommended to the user.”). That Chen and Chi have similar goals of providing predicted sought-after information to Web users further shows that artisans of ordinary skill would have known that there was nothing surprising about using proximal information with other information to obtain more accurate clustering and/or to satisfy a user’s information needs.

Patent Owner relies on Dr. Martin’s testimony “[t]hat the inventors and their colleagues continued to publish in the area for years—while journals and other mediums accepted their publications—shows that there was an unresolved need for a better solution.” PO Resp. 66 (quoting Ex. 2006 ¶ 180). Patent Owner relies on dates of publications from “PARC and Xerox” starting from 1997. *See id.* at 10 (citing Ex. 1009). This alleged unsolved need relates to publications of a limited number of artisans over about four to five years up to the date of the invention (2002). Moreover, it is not clear how these “journals and other mediums accept[ing] their publications” serve to demonstrate that a persistent long-felt need existed that artisans of ordinary skill recognized, let alone one with a nexus to the claimed invention. In addition, Patent Owner describes “the inventors and

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their colleagues” as “extraordinarily skilled individuals,” instead of artisans of ordinary skill. PO Resp. 66. Further, apart from a generic allegation of a need for a “better solution,” Patent Owner fails to identify with specificity what the long-felt need was, or how the publications addressed these needs. *See id.*

The Invention Proposal relied upon by Patent Owner indicates that any alleged surprising results or solutions to long-felt need are not commensurate in scope with the claimed invention. Therefore, there is little or no evidence to support a nexus or presumption of nexus. For example, the Invention Proposal states that “[i]n both cases [of combining weighted proximal information with 1) content modality and 2) content modality and inlink], we see that *weighting the proximal scent terms* improves the accuracy of the method.” Ex. 2014, 5 (emphasis added); *see also* PO Resp. 27 (discussing and quoting the same passage).¹⁸ However, only challenged claims 6 and 15 require weighting of the proximal information, but the recited weighting is generic (i.e., without specifying any weighting algorithm), and does not require the specific weighting technique alleged in

¹⁸ The “accuracy” pertains to showing fewer instances of user misclassifications (i.e., 3) in the cases using “Weighted Proximal” information as compared to the cases using “Proximal Only” and “No Proximal” information. *Id.* at 5. Dr. Martin calculates this use of (weighted) proximal information as providing 97.1 % accuracy (104–3)/104, because only 3 users out of 104 were misclustered. *See* PO Resp. 27 (citing Ex. 2006 ¶ 59; Ex. 2014, 5). However, this alleged “accuracy” is less than the “99%” accuracy obtained from prior experiments that involved “choosing the correct data modalities and weighting schemes.” Ex. 2014, 4–5 (citing “[Heer02]” as describing the experiment in more detail); *see id.* at 1 (describing “[Heer02]” as “a previous evaluation [that] suggests that these techniques work quite well” but involving “data models” that are “quite large”).

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the Invention Proposal (as described further below) to contribute to accuracy. *See* PO Resp. 27; Ex. 2014, 5. In any event, Petitioner shows that weighting different types of information differently based on the combined teachings of Chen and Chi would have been obvious “as it would advantageously allow a user to calibrate the level of importance given that information in clustering algorithms.” Pet. 59 (citing Ex. 1004 ¶¶ 55–56). Patent Owner does not present separate arguments for claims 6 and 15.

Therefore, Patent Owner fails to establish a nexus, because the challenged claims are not commensurate in scope with the alleged evidence. *See MeadWestVaco Corp.*, 731 F.3d at 1264 (holding it is error to consider “secondary considerations of non-obvious [that] involved only fragrance-specific uses, but the claims now at issue [i.e., claims 15 and 19] are not fragrance-specific”); *cf. Zaxcom*, 2022 WL 499843, at *2 (holding that “the Board determined that Zaxcom’s evidence of industry praise and long-felt need was entitled to a presumption of nexus, noting that these indicia were commensurate in scope with the claims as now narrowed, . . . a determination that comports with the legal standards for a presumption”).

More specifically, the Invention Proposal states that “the proximal scent terms are given *an additional weighting proportional to the term frequency within the link region*.” Ex. 2014, 5 (emphasis added). “This idea is to make the proximal terms ‘stand out’ in the data.” *Id.* As determined above, the challenged claims do not require determining the term frequency of the proximal words, let alone weighting them so that the proximal words “stand out” in the data.¹⁹ Moreover, describing a previous experiment that

¹⁹ In addition, challenged claims 1 and 10, which recite “determining proximal information for content portions *associated with the user paths*,”

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did not involve proximal information, the Invention Proposal states that the previous experiment was “*quite encouraging; by choosing the correct data modalities and weighting schemes* we were able to achieve categorization accuracies *as high as 99%!*” *Id.* at 4–5 (emphasis added); *see also* PO Resp. 27 (referring to this previous experiment as part of “[t]he inventors[’] . . . study mentioned in their April 2002 paper” (Ex. 2018), also discussing Ex. 2014); *supra* note 18 (similarly describing “[Heer02]” in connection with the previous experiment); Ex. 2014, 5 (“[T]his previous experiment, while quite successful, did not utilize any proximal scent information for the pages traversed.”). The Invention Proposal does not show that using proximal information provided anything surprising in the way of accuracy or otherwise, where Dr. Martin calculates a 97.1% accuracy when combining proximal scent information with content and inlink modality (*supra* note 18), but the noted prior experiments that the Invention Proposal describes show

do not require that the user actually follows or presses the proximal information link and then arrives at the next web page (which would be on the user path), whereas the Invention Proposal indicates this traversal is part of the Invention Proposal. *See* Ex. 2014, 3 (“For each page a user accesses, we look up to see if we have stored any proximal scent information for the current source page *and the subsequent page the user visited.*”). Of course, as the Invention Proposal indicates, visiting a web page indicates user interest in that page. Challenged claims 1 and 10 do not *require* such visitation or accounting for it. As indicated above, claims 2, 3, 11, and 12 further limit determining proximal information by reciting it includes “analyzing/es portions of a text associated with a link between content portions along the user path.” This appears to require that the proximal link cannot be on the last web page visited on the user path (because it is between content portions (or pages) along the user path), but it does not explicitly require pressing the proximal link, visiting the next page at the distal end of the link, and then recording that visitation. Patent Owner does not argue claims 2, 3, 11, and 12 separately.

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that an appropriate weighting for known data modalities achieved “categorization accuracies as high as 99%!”—i.e., without any proximal cues. Ex. 2014, 5; *see also* PO Resp. 27 (recognizing that the Invention Proposal describes the “previous experiment” as “quite successful” (quoting Ex. 201[4], 5)); Ex. 2006 ¶ 59 (same).

And as discussed above, Heer2002 (Ex. 2018) observes that “Inlink and Outlink both performed poorly on their own.” Ex. 2018, 5. Heer2002 “summarize[s]” by observing that “crawling the site and *using the page content to help cluster user sessions greatly increases algorithm accuracy. This is far from surprising; intuitively, the words that the user sees during each session are good indicators of their information need.*” *Id.* Patent Owner’s cited evidence reveals that there is nothing surprising about words on a web page, which includes words surrounding or within a link, being “good indicators” of an information need.

As Petitioner also argues, Patent Owner fails to establish an alleged long-felt need and failure of others because Patent Owner fails to “offer affirmative evidence showing others failed—it merely argues (erroneously) that the record evidence does not include a reference combining multi-modal and proximal information.” Reply 27. Petitioner also notes that Patent Owner appears to rely on the allegation that other researchers at PARC did not arrive at the same invention, but this is not objective evidence of nonobviousness, because it does not demonstrate that others tried and failed to solve any need solved by the claimed invention or that artisans of ordinary skill at the time would have been surprised at any result related to the claimed invention. *See id.*

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Patent Owner’s generic assertion of the resolution of “an ongoing need for a better solution” (PO Resp. 66) also fails to show that that claimed determining and use of proximal information with multi-modal information, in the absence of weighting proximal cue words using a frequency algorithm and/or other features noted in the Invention Proposal (e.g., traversal of the proximal information link), contributes to accuracy of clustering or provides a better solution. *See, e.g., supra* note 18 (noting that in general, choosing proper weighting, including frequency weighting, for different modalities provides accuracy) (citing Ex. 2014)).

Patent Owner also argues that “the U.S Navy recognized the value of the research being done by the inventors and their colleagues.” PO Resp. 67 (citing Ex. 2006 ¶ 182). Patent Owner states that “[s]pecifically, as the ’475 [p]atent and the teams’ 2001 patent application note, the U.S. Office of Naval Research was funding the inventors’ research, which led to that entity getting a governmental license.” *Id.* (citing Ex. 1013 ¶ 2; Ex. 1001, 1:8–12).

However, as Petitioner notes, Patent Owner does not show a nexus between the funding and the claimed invention. *See* Reply 28. Rather, Petitioner shows that the Office of Naval Research awarded the contract around 1999, “long before any claims were written (and, if PO’s assertions are believed, before the inventors thought to combine multi-modal and proximal information).” *Id.*

Patent Owner’s citation to Chi4 (Ex. 1013) with respect to a “governmental license” indicates that the license is part of the contract for funding in the area. *See* PO Resp. 67 (citing Ex. 1013 ¶ 2; Ex. 1001, 1:8–12). Chi4 is a copy of U.S. Patent App. Pub. No. 2002/0143802 (the ’802 patent publication”) to listed inventors Chi and Chen (filed Mar. 30, 2001,

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published Oct. 3, 2002). Ex. 1013. Chi4 lists the same U.S. Patent Office of Naval Research Contract N00014-96-C-0097 discussed above. *Compare* Ex. 1013 ¶ 2 (citing Office of Naval Research Contract N00014-96-C-0097), *with* Ex. 1001, 1:8–12 (same)).

In its Sur-reply, Patent Owner argues a nexus due to the “governmental license,” but concedes the “funding may have come earlier,”—i.e., prior to the ’475 patent claims, as Petitioner argues. *See* Sur-reply 25; Reply 28. In other words, Patent Owner’s argument apparently is in response to Petitioner’s argument that no nexus to the claimed invention exists because “[t]his grant was awarded around 1999, long before any claims were written (and, if [Patent Owner’s] assertions are believed, before the inventors thought to combine multi-modal and proximal information).” Reply 28 (citing Ex. 1032). Petitioner also shows that Patent Owner admits that “the grant was to ‘fund[]’ the inventors’ research . . . , which at most indicates interest in this *area*, not ’475’s particular claimed ‘invention.’” *Id.* (citing PO Resp. 4, 67). In addition, Petitioner shows that Patent Owner admits that Chi4 discloses proximal information, but Patent Owner alleges that Chi4 does not disclose multimodal information, indicating no nexus to the ’475 patent claims.²⁰ *Id.* at 28–29 (citing PO Resp. 15, 67; Ex. 1012, 19; Ex. 1006, 8; Ex. 1007, 12; Ex. 1010, 5; Ex. 1013, 8).

²⁰ Claim 1 of the ’802 patent publication recites, *inter alia*, “determining the connection topology of the collection of content portions, for each connection determined, determining proximal information cue words associated with each connection,” and “storing at least one of the proximal information cue words based on the connection.” Ex. 1013, 13. These claims specifically recite storing proximal information and do not recite clustering or other multi-modal information. Patent Owner does not argue

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As Petitioner argues, Patent Owner fails to show how the license (or contract) has a nexus to the claimed invention of the '475 patent, given that the Office of Naval Research awarded funding and obtained the same license as part of the “invention” of Chi4, the '802 patent publication. Ex. 1013 ¶ 2.²¹ As Petitioner essentially argues, this contract and license arose prior to the claims of the '475 patent.

Finally, a license generally pertains to evidence of commercial success of a product, which is not alleged here. *See, e.g., Iron Grip Barbell Co. v. USA Sports, Inc.*, 392 F.3d 1317, 1324 (Fed. Cir. 2004) (“Our cases specifically require affirmative evidence of nexus where the evidence of commercial success presented is a license, because it is often ‘cheaper to take licenses than to defend infringement suits.’” (quoting *EWP Corp. v. Reliance Universal Inc.*, 755 F.2d 898, 908 (Fed. Cir. 1985))).

viii. Summary

As indicated above, the record shows that no presumption of nexus exists and no nexus exists between Patent Owner’s secondary considerations evidence and the claimed invention. Even if some weak nexus exists, Petitioner’s showing of obviousness outweighs the evidence of nonobviousness. On the full record, after weighing the arguments and evidence, including evidence of secondary considerations of nonobviousness, we determine that Petitioner shows by a preponderance of

that any overlap or similarities between the claims of the '802 patent publication and the '475 patent claims shows a nexus.

²¹ Patent Owner amended the specification during prosecution of the '475 patent on February 17, 2006, to include the contract and licensing information and also amended the claims to place them in condition for allowance (i.e., in their as-issued form). *See* Ex. 1002, 122 (Notice of Allowability); 108–118 (Supplemental Amendment).

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evidence that claims 1 and 10 would have been obvious over the combination of Chen, Pitkow, Chi, and Heer, and claim 10 would have been obvious over the combination of Chen, Pitkow, Chi, Heer, and Cooke.

b. Claims 2–9 and 11–18

Petitioner presents evidence and argument in support of its contentions that dependent claims 2–9 and 11–18 would have been obvious over the combination of Chen, Pitkow, Chi, and Heer, and claims 11–18 would have been obvious over the combination of Chen, Pitkow, Chi, Heer, and Cooke. Pet. 45–75. A review of the record reveals that the Petition provides persuasive evidence and rationale to support its challenges. *See id.* Patent Owner does not contest these claims separately. *See generally* PO Resp.

Accordingly, after weighing the arguments and evidence, including evidence of secondary considerations of nonobviousness, we determine that Petitioner persuasively demonstrates by a preponderance of evidence that claims 2–9 and 11–18 would have been obvious over the combination of Chen, Pitkow, Chi, and Heer, and claims 11–18 would have been obvious over the combination of Chen, Pitkow, Chi, Heer, and Cooke.

III. CONCLUSION

For the reasons discussed above, Petitioner has shown by a preponderance of the evidence that claims 1–18 of the '475 patent are unpatentable as summarized in the table below.

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Claims	35 U.S.C. §	Reference(s)/Basis	Claims Shown Unpatentable	Claims Not Shown Unpatentable
1–18	103	Chen, Pitkow, Chi, Heer ²²	1–18	
10–18	103	Chen, Pitkow, Chi, Heer, Cooke	10–18	
1–7, 9–16, 18		Chen, Pitkow		
1–7, 9–16, 18		Chen, Pitkow, Chi		
1–18		Chen, Pitkow, Heer		
10–16, 18		Chen, Pitkow, Cooke		
10–16, 18		Chen, Pitkow, Chi, Cooke		
10–18		Chen, Pitkow, Heer, Cooke		
Overall Outcome			1–18	

IV. ORDER

Accordingly, it is

ORDERED that Petitioner has shown that challenged claims 1–18 are unpatentable; and

²² As noted above (Section II.D), we reach only the first two grounds listed here given our dispositive determination of obviousness in the grounds we reach.

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FURTHER ORDERED that, because this is a Final Written Decision, parties to the proceeding seeking judicial review of the decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.²³

²³ Should Patent Owner wish to pursue amendment of the challenged claims in a reissue or reexamination proceeding subsequent to the issuance of this decision, we draw Patent Owner's attention to the April 2019 Notice Regarding Options for Amendments by Patent Owner Through Reissue or Reexamination During a Pending AIA Trial Proceeding. *See* 84 Fed. Reg. 16654 (Apr. 22, 2019). If Patent Owner chooses to file a reissue application or a request for reexamination of the challenged patent, we remind Patent Owner of its continuing obligation to notify the Board of any such related matters in updated mandatory notices. *See* 37 C.F.R. §§ 42.8(a)(3), (b)(2).

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

TWITTER, INC.,
Petitioner,

v.

PALO ALTO RESEARCH CENTER INC.,
Patent Owner.

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Before KARL D. EASTHOM, SHEILA F. McSHANE, and
CHRISTOPHER L. OGDEN, *Administrative Patent Judges*.

EASTHOM, *Administrative Patent Judge*.

ORDER
Granting-in-Part Patent Owner's Request
for Discovery
37 C.F.R. § 42.51

I. BACKGROUND

Pursuant to our authorization (Paper 25, “Order”), Patent Owner filed a Request for Discovery (Paper 27, “Request” or “Req.”), Petitioner filed an Opposition to Patent Owner’s Request for Discovery (Paper 30, “Opposition” or “Opp.”), and Patent Owner filed a Reply to Petitioner’s Opposition (Paper 31, “Rep. to Opp.”). This trial is near the final stages, with all briefing already filed according to the Scheduling Order (Paper 13) and an Oral Hearing set for December 14, 2022 (Paper 32).

For *inter partes* reviews, 37 C.F.R § 42.51(b) provides for limited discovery, which includes routine discovery under § 42.51(b)(1) and additional discovery under § 42.51(b)(2).

Patent Owner seeks discovery of an (unfiled) draft reply declaration referenced by Petitioner’s declarant, Dr. Turnbull, during his deposition (Ex. 2027), which involved cross-examination by Patent Owner of Dr. Turnbull concerning his testimony in his (filed) Reply Declaration (Ex. 1033). Req. 1. Patent Owner now seeks discovery of the draft reply declaration based on an alleged inconsistency therein (relative to the Reply Declaration) uncovered during the deposition. *Id.* According to Patent Owner, the alleged inconsistency undermines Petitioner’s, and supports Patent Owner’s, claim construction of “proximal information.” *Id.* at 1–2, 5.

As the Order explains, during a teleconference with the parties to discuss Patent Owner’s request to authorize the discovery Request,

the parties agreed that at the deposition, Dr. Turnbull initially referred to a draft of his expert [reply] declaration before shifting to the final filed version for the remainder of his deposition. Patent Owner alleged that Dr. Turnbull quoted a passage from paragraph 5 of the draft [reply] declaration that contradicts paragraph 5 of his [filed] Reply Declaration (Ex. 1033) in a

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manner relating to the claim construction of the term “proximal information.” *Compare* Ex. 1033 ¶ 5 (testifying that “examples of proximal information in the ’475 [patent] include text extracted from a link and text near/surrounding/adjacent to a link (outlink)”), *with* Ex. 1033, 9:14–18 (testifying that “examples of proximal information in the ’475 [patent] include text associated with the link, and text near/surrounding/adjacent to a link, or outlink”).

Order 2.

Based on the alleged inconsistency, Patent Owner contends that the draft reply declaration is “routine discovery” under 37 C.F.R §§ (b)(1)(i) and (iii), and also that the “*Garmin* factors” weigh in favor of “additional discovery” under 37 C.F.R § 42.51(b)(2). *See* Req. 1–4 (citing *Garmin Int’l, Inc. v. Cuozzo Speed Techs. LLC*, IPR2012-00001, Paper 26, 6–7 (PTAB Mar. 5, 2013) (precedential)). Petitioner replies that Dr. Turnbull inadvertently relied on a sentence in the wrong document (i.e., the unfiled draft reply declaration—instead of the filed Reply Declaration) after mistakenly downloading the draft declaration during the video deposition. *See* Opp. 1, 5; Order 3. Petitioner asserts that work product privilege applies to the whole draft reply declaration, but Petitioner does “not seek to claw back” paragraph five of the draft reply declaration. *See* Opp. 1, 5; Order 3.

A. *Routine Discovery*

Patent Owner seeks routine discovery under 37 C.F.R §§ 42.51 (b)(1)(i) and (iii), which follow:

(b) **Limited discovery.** A party is not entitled to discovery except as provided in paragraph (a) of this section, or as otherwise authorized in this subpart.

(1) **Routine discovery.** Except as the Board may otherwise order:

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(i) Unless previously served or otherwise by agreement of the parties, any exhibit cited in a paper or in testimony must be served with the citing paper or testimony.

....

(iii) Unless previously served, a party must serve relevant information that is inconsistent with a position advanced by the party during the proceeding concurrent with the filing of the documents or things that contains the inconsistency. This requirement does not make discoverable anything otherwise protected by legally recognized privileges such as attorney-client or attorney work product. This requirement extends to inventors, corporate officers, and persons involved in the preparation or filing of the documents or things.

Patent Owner generally argues that Dr. Turnbull waived any privilege for the draft reply declaration by using it to prepare for the deposition, citing it during the deposition, and refreshing his recollection with it during the deposition. Req. 3–4 (citing Ex. 2027, 9:8–10:12; Fed. R. Evid. 612(a)(1); *Thomas v. Euro RSCG Life*, 264 F.R.D. 120, 122 (S.D.N.Y. 2010) (finding privileged waived and ordering production of notes reviewed prior to deposition); *Heron Interact, Inc. v. Guidelines, Inc.*, 244 F.R.D. 75, 78 (D. Mass. 2007) (ordering production of documents reviewed by deponent prior to deposition)). Patent Owner also argues that “because the document contains inconsistent information, the document is routine under § 42.51(b)(1)(iii).” *Id.* Patent Owner contends that Dr. Turnbull “testified that he used the *entire* document, not just one paragraph, in anticipation of and to prepare for his deposition.” *Id.* (citing Ex. 2027, 9:8–18).

Petitioner replies that Dr. Turnbull inadvertently relied on a single sentence in paragraph five of the wrong document (i.e., the privileged draft reply declaration) after downloading it during the video deposition. Opp. 1. Petitioner submits it does not waive privilege as to the draft reply

declaration, but states it does not seek to “claw back” paragraph five of the draft reply declaration. *See* Opp. 1, 5; Order 3.

Under routine discovery, “a party must serve relevant information that is inconsistent with a position advanced by the party during the proceeding,” but “[t]his requirement does not make discoverable anything otherwise protected by legally recognized privileges such as attorney-client or attorney work product.” 37 C.F.R § 42.51(b)(1)(iii) (emphasis added). We find, for the reasons that follow, that the work product privilege applies to the draft declaration except for paragraph 5 (which Petitioner does not seek to “claw back” as indicated above).

In context to this *inter partes* proceeding, “[f]or cross-examination testimony,” under 37 C.F.R § 42.53(d)(5)(ii), “the scope of the [cross-] examination is limited to the scope of the direct testimony.” Here, the scope of the direct testimony is Dr. Turnbull’s Reply Declaration (Ex. 1033) with the caveat that Dr. Turnbull opened the door to further cross-examination at least with respect to paragraph five of the draft reply declaration during his deposition. As further context, under 37 C.F.R § 42.65(a), “[e]xpert testimony [in the form of a declaration] that does not disclose the underlying facts or data on which the opinion is based is entitled to little or no weight.”

Under this context, Patent Owner cites *Albritton v. Acclarent, Inc.*, No. 3:16-cv-03340-M, 2020 WL 11627275, at *10 (N.D. Tex. Feb. 28, 2020), in support of its position for discovery of the entire draft reply declaration. Req. 6. As Patent Owner notes, *Albritton* states that “to the extent initial draft reports prepared by attorneys communicate facts, data, or assumptions to [the experts] for them to consider in forming their opinions, those draft reports do not fall within Defendant’s counsel’s reservation of its

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privilege under Rule 26(b)(4)(B) and shall be produced.” *Id.* (quoting *Albritton*, 2020 WL 11627275, at *10, referring to Fed. R. Civ. P. 26(b)(4)(B)).

Patent Owner’s reliance on *Albritton* relates to Fed. R. Civ. P. 26. *See* Req. 6 (quoting *Albritton*, 2020 WL 11627275, at *10).¹ This rule was amended in 2010, and as the court explained in *Republic of Ecuador v. Hinchee*, 741 F.3d 1185, 1195 (11th Cir. 2013), these amendments “did two things” relevant to the privilege at issue here:

First, as outlined above, the drafters added Rules 26(b)(4)(B) and (C) to protect draft expert reports and attorney-expert communications as work product. Second, the drafters changed the language of Rule 26(a)(2)(B) from “data or other information” to “facts or data.” This change rejects the outcome reached by cases that relied on the old “other

¹ Applicable portions of Rules 26(b)(4) (B) and (C) follow:

(B) *Trial-Preparation Protection for Draft Reports or Disclosures.* Rules 26(b)(3)(A) and (B) protect drafts of any report or disclosure required under Rule 26(a)(2), regardless of the form in which the draft is recorded.

(C) *Trial-Preparation Protection for Communications Between a Party's Attorney and Expert Witnesses.* Rules 26(b)(3)(A) and (B) protect communications between the party’s attorney and any witness required to provide a report under Rule 26(a)(2)(B), regardless of the form of the communications, except to the extent that the communications:

(i) relate to compensation for the expert's study or testimony;

(ii) identify facts or data that the party's attorney provided and that the expert considered in forming the opinions to be expressed; or

(iii) identify assumptions that the party's attorney provided and that the expert relied on in forming the opinions to be expressed.

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information” language in Rule 26(a)(2)(B) to compel the production of draft expert reports and communications between attorneys and experts. Rule 26(a)(2)(B) was changed so that it would not conflict with new Rules 26(b)(4)(B) and (C), which now *expressly exempt draft reports and attorney-expert communications from discovery*.

....

None of this suggests the drafters’ intent to confer work-product status on *the notes of a testifying expert or on a testifying expert's communications with other experts*. Rather, the 2010 Amendment to Rule 26(a)(2)(B) *was intended to protect the opinion work-product* of attorneys in the context of expert discovery. As the 2010 Advisory Committee put it, “[t]he refocus of disclosure on ‘facts or data’ is meant to limit disclosure to material of a factual nature by excluding *theories or mental impressions of counsel*.” *Id.* (emphasis added). . . . In other words, the term “facts or data” includes all materials considered by a testifying expert, *except the core opinion work-product of attorneys*.

Id. at 1194–95 (emphasis added except for second to last). Therefore, *Hinchee* indicates that Fed. R. Civ. P. 26 generally allows for discovery of “facts and data,” but not mental impressions of attorneys. This suggests discovery of “facts and data” that an expert opinion relies upon in a declaration. However, the Request encompasses production of expert “opinion” evidence “based” on “underlying facts or data” in the draft reply declaration, instead of just “facts or data.” *See* 37 C.F.R § 42.65(a) (“Expert testimony [in the form of a declaration] that does not disclose the underlying *facts or data on which the opinion is based* is entitled to little or no weight.” (emphasis added)).

Patent Owner Owner’s reliance on *Albritton* (and other cited cases discussed below) is not persuasive, because Patent Owner does not explain how a claim construction theory, which is a legal inquiry that Patent Owner

agrees is at “the heart” of its dispute and therefore central to its Request, represents “facts or data.” *See* Req. 5

The court in *Albritton* did not interpret Rule 26(b)(4)(B) contrary to *Hinchee*.² In *Albritton*, counsel had previously waived privilege as to work-product communications under Rule 26(b)(4)(C) while preserving the privilege for draft expert reports under Rule 26(b)(4)(B). *See* 2020 WL 11627275, at *9. In the passage Patent Owner relies on, the court simply held that, to the extent that an attorney prepared an initial draft of an expert report and communicated “facts, data, or assumptions” to the expert to consider in forming the expert’s opinions, those communications were not excluded from the party’s previous waiver of Rule 26(b)(4)(C) protection at least as to facts, data, or assumptions therein. *See id.* at *10.

Patent Owner also cites to *Thomas*, 264 F.R.D. at 122, as persuasive authority as “finding [the] privileged waived and ordering *production of notes reviewed* prior to [a] deposition.” Req. 3 (emphasis added); *Thomas v. Euro RSCG Life*, 264 F.R.D. 120 (S.D.N.Y. 2010). Petitioner distinguishes *Thomas* (and other cases cited by Patent Owner) as involving an “entirely different” discovery standard and also “hav[ing] nothing to do with when a testifying witness inadvertently opened and read from the wrong document.” Opp. 6. In *Thomas*, the court held that “it is in the interests of justice for defendants to be able to adequately cross-examine plaintiff by having access to notes that plaintiff admitted to reviewing so that she could answer questions ‘accurately.’” *Thomas*, 264 F.R.D. at 122. The court found that

² In *Albritton*, the court ordered that to the extent the plaintiff there asserted a privilege with respect to any draft reports, it was to provide a privilege log. *Albritton*, 2020 WL 11627275, at *10.

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“[t]he *notes are simply a factual recitation*, arranged chronologically, and evince no work-product concerns.” *Id.* (emphasis added). The notes related to, or were a summary of, “many conversations” the witness had with another person, and the witness testified that “it’s going to be very difficult for me to recount all of the conversations.” *Id.*

As Petitioner argues, *Thomas* is not on point. *See* Opp. 6. Dr. Turnbull does not testify that he relied on anything in his draft reply declaration (other than paragraph five thereof) or had difficulty recalling large portions of testimony such that any alleged reliance would transform the draft reply declaration into “notes” under the rubric of *Thomas*. *See* Ex. 2027, 6:21–23 (testifying that “I just copied several [documents] to my desktop that I thought would be relevant. If we have another one, I can go dig it up. It won’t take but a second.”), 12:2–9 (testifying based on “a sentence” from paragraph 5 of the draft reply declaration and based on paragraph 132 from his filed original Declaration (Ex. 1003)). Patent Owner’s arguments and citations to the deposition do not show that Dr. Turnbull relied on other portions of the draft reply declaration during his deposition or that he reviewed it prior to the deposition to refresh his recollection. *See* Rep. to Opp. 1 (citing Ex. 2027, Ex. 2027, 5:16–18, 6:13–14, 9:8–10:10).³

³ Patent Owner cites to other cases that precede the 2010 Amendments to Fed. R. Civ. P. 26. *See* Req. 3 (citing *Heron Interact, Inc. v. Guidelines, Inc.*, 244 F.R.D. 75, 78 (D. Mass. 2007)); 6 (citing *W.R. Grace & Co.-Conn. v. Zotos Intern., Inc.*, No. 98–CV–838S(F), 2000 WL 1843258, *2–*5 (W.D.N.Y. 2000)). But as quoted above, the 2010 Amendments “reject[] the outcome reached by cases that relied on the old ‘other information’ language in Rule 26(a)(2)(B) to compel the production of draft expert reports and communications between attorneys and experts.” *Hinchee*, 741 F.3d at

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Patent Owner also argues that the “Board . . . ha[s] ordered production of entire draft and non-filed declarations.” Req. 6 (citing *GEA Process Eng’g, Inc. v. Steuben Foods, Inc.*, IPR2014-00041, Paper 52, 6–7 (PTAB July 21, 2014)). Petitioner argues that the “facts are inapt” in *Steuben Foods*, because it relates to discovery of a signed, but unfiled, omnibus declaration, which the patent owner in that case broke into five separate declarations and filed, but the declarant testified he did not review all of them prior to the filing thereof (i.e., he reviewed them thereafter). *Compare* Opp. 6 (arguing that “[h]ere, there is no dispute that Dr. Turnbull reviewed the final filed version”) with, *Steuben Foods*, Paper 52 at 4–5 (quoting declarant’s testimony that shows he investigated the five declarations only *after* patent owner filed them and finding that at least minor differences existed between the signed unfiled omnibus declaration and four of the five filed declarations he did not authorize).

Steuben Foods supports Petitioner’s position for other reasons. First, the Board found that the patent owner there waived any work product privilege. *Steuben Foods*, Paper 52 at 5 (“Patent Owner cannot on the one hand argue that the omnibus declaration is privileged, and on the other hand

1195. As *Hinchee* discusses, the 2010 Amendments to Fed. R. Civ. P. 26 operate to protect attorney-client and work product privilege in draft reports by only allowing discovery of “facts and data,” as opposed to the predecessor rule that allows for discovery of “information.” *See id.* Therefore, if anything, *W.R. Grace*, based on the predecessor rule, supports Petitioner’s position, or at the least, is not instructive. *See W.R. Grace* 2000 WL 1843258, at * 4 (“The court finds that the 1993 revisions enacted in Fed. R. Civ. P. 26(a)(2)(B)’s requiring disclosure of all “*information* considered by the expert in forming the [expert’s] opinion” does not exempt so-called ‘core’ work-product, i.e., mental impressions, opinions, and litigation strategies.” (emphasis added)).

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allow Patent Owner's declarant to review the declaration again and now testify as to the differences between the omnibus declaration and the five declarations that were actually filed." Here, if there was waiver, it appears to be due to an inadvertent and limited disclosure that pertains only to paragraph five of the draft reply declaration.

Second, in ordering discovery of the entire unfiled and unsigned omnibus declaration, the Board in *Stueben Foods* distinguished the following two cases: 1) *Clemmons v. Acad. for Educ. Dev.*, No. 10-cv-911, 2013 WL 5994487, at *2 (D.D.C. Nov. 13, 2013) (quoting *Judicial Watch v. Dep't of Commerce*, 201 F.R.D. 265, 269 (D.D.C. 2001)), cited by the patent owner in *Stueben Foods* "for the principle that '[a] draft of a declaration to be executed by a party or witness denotes what a lawyer thinks that party or witness should say and thereby exposes that lawyer's mental processes'; 2) *Intel Corp. v. VIA Techs, Inc.*, 204 F.R.D. 450, 452 (N.D. Cal. 2001), cited by the patent owner in *Stueben Foods* "for the principle that work product protection attached to the declarant's declaration 'right up until the moment it was filed.'" *Stueben Foods*, Paper 52 at 6–7.

In general, the Board summarized the two cases above as "legal authority from other tribunals *for the proposition that a draft declaration is protected from disclosure unless, and until, it has been filed and/or served*," but found "[t]hat authority[] is inapplicable to the facts of this case." *Stueben Foods*, Paper 52 as 6 (emphasis added). In particular, the Board distinguished *Clemmons* and *Intel Corp.* by finding that in the *Stueben Foods* case, "[p]atent [o]wner's declarant testified that he reviewed the omnibus declaration and authorized his signature to be applied to that single document," and "the omnibus declaration is the only document that he, in

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fact, reviewed and executed.” *Stueben Foods*, Paper 52 at 6–7. There is no similar testimony here about executing the unfiled draft reply declaration. *See* Ex. 2027. As another distinction, there is no testimony that Dr. Turnbull did not review the Reply Declaration, and he attested to the truth of it. *See Stueben Foods*, Paper 52 at 5 (“Our analysis *turns on the specific fact in this case* that Patent Owner’s declarant *did not review the actual declarations that were filed* in each of the five cases” (emphasis added)); Ex. 1033, 24. Therefore, under *Clemmons*, *Intel. Corp.*, and the Board’s underlying rationale in *Stueben Foods*, a draft declaration “exposes [the] lawyer’s mental processes,” *Clemmons*, 2013 WL 5994487, at *2 (quoting *Judicial Watch*, 201 F.R.D. at 269), and is protected work product “right up until the moment it was filed,” *Intel Corp.*, 204 F.R.D. at 452. This applies to the draft reply declaration here, it is protected as not filed because it presumptively or potentially exposes Petitioner’s lawyer’s mental processes.

Patent Owner also refers to 37 C.F.R § 42.51(b)(1)(i) as support for its request for routine discovery, but acknowledges that it only applies if the draft reply declaration is “[s]tripped of any privilege.” Req. 3–4. For the reasons noted above, Petitioner did not waive the privilege as to the draft reply declaration except to the extent that Dr. Turnbull discussed paragraph five and Petitioner does not seek to claw it back.

Patent Owner also refers to Fed. R. Evid. 612(b), asserting that “[w]hen a witness uses a writing to refresh their memory, ‘an adverse party is entitled to have the writing produced at the hearing, to inspect it, to cross-examine the witness about it, and to introduce in evidence any portion that relates to the witness’s testimony.’” Opp. 2 (quoting Fed. R. Evid. 612(b)). However, based on the findings above, Patent Owner fails to show that this

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applies to the whole draft reply declaration where Dr. Turnbull did not refresh his memory with anything other than paragraph five of the draft reply declaration. Moreover, Patent Owner had the opportunity to cross-examine Dr. Turnbull about the draft reply declaration during the deposition and did not ask him to produce it there, waiving its asserted application of Fed. R. Evid. 612(b).⁴ At most, Patent Owner is entitled to produce paragraph five as evidence in this trial, as that is the “portion that relates to the witness’s testimony.” *See* Fed. R. Evid. 612(b)

Accordingly, we grant the Motion in-part and order discovery of paragraph five of the draft reply declaration. However, we determine that, with the exception of paragraph five, the draft reply declaration is protected from disclosure. Thus, we determine that any part of the draft reply declaration, other than paragraph five, is not permissible routine discovery.

B. Additional Discovery

Alternatively, Patent Owner argues that Dr. Turnbull’s draft reply declaration is discoverable under 37 C.F.R § 42.51(b)(2) as “additional discovery” in light of the *Garmin* factors. For the reasons below, Patent Owner has not shown that this additional discovery is in the interests of justice.

⁴ Patent Owner asserts that “[a]s with any deposition, Dr. Turnbull was asked to disclose any materials he had with him.” Req. 1 (citing Ex. 2027 5:1–15). This characterization is accurate only if “disclose” means “identify.” That is, Patent Owner merely asked Dr. Turnbull “do you have any documents with you today,” and he answered “[n]o, nothing on my desk. I have some just completely blank eCopies of things that *we might need that I can pull up*, and that’s it.” Ex. 2027, 5:14–18 (emphasis added). Patent Owner did not ask Dr. Turnbull to “pull up” any documents or transfer them to Patent Owner. *See* Ex. 2027.

Patent Owner persuasively shows that *Garmin* factors 4 (easily understandable instructions) and 5 (requests not overly burdensome to answer) favor discovery of the draft reply declaration. *See Garmin*, Paper 27 at 6–7.

Garmin factor 2 relates to litigation positions. Because, as determined above, the draft declaration (except paragraph five) falls under a privilege as attorney work product, *Garmin* factor 2 weighs strongly against Patent Owner.

Garmin factor 3 relates to the ability to generate equivalent information by other means. This factor refers to “[i]nformation a party can reasonably figure out or assemble without a discovery request,” which “would not be in the interest of justice to have produced by the other party.” *Garmin*, Paper 27 at 6. Patent Owner states it “cannot obtain this [draft declaration] from any other source.” Req. 5–6.

Patent Owner here is arguing that the only thing equivalent to the draft reply declaration is the draft reply declaration. Contrary to this argument, as explained above, Patent Owner ultimately seeks information to support its claim construction position with respect to “proximal information,” arguing that “a key dispute between the parties” is “whether an association is required for ‘proximal information.’” Req. 5. But “[i]n determining the meaning of [a] disputed claim limitation, we look principally to the intrinsic evidence of record, examining the claim language itself, the written description, and the prosecution history, if in evidence.” *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 469 F.3d 1005, 1014 (Fed. Cir. 2006) (citing *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005)). Therefore, the information Patent Owner seeks to support its claim

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construction position should be “principally . . . [in] the intrinsic evidence of record,” which is readily available. *See DePuy Spine*, 469 F.3d at 1014. Patent Owner does not need Petitioner’s unfiled draft reply declaration to set forth a claim construction of “proximal information” supported by the record. Patent Owner is in the best position to establish the claim construction of its claim term based on its patent specification. *See Garmin*, Paper 27 at 17 (“Cuozzo has not adequately explained why it needs Garmin’s views to establish what Cuozzo believes had been a long-felt but unresolved need with regard to speed limit indicators. Cuozzo can rely on its own analysis of the state of the art or on the opinions of independent analysts.”).

With respect to the alleged inconsistency in the construction of the term “proximal information,” Patent Owner argues that it centers on Dr. Turnbull’s use of the term “associated with” in paragraph five of the draft reply declaration, instead of the term “extracted from,” which appears in paragraph five of the Reply Declaration. Req. 2. Patent Owner also points to portions of Dr. Turnbull’s deposition in support of its theory of an inconsistency in Petitioner’s position. *Id.* at 4–5. Accordingly, if there is a material inconsistency, Patent Owner already possesses the information it seeks in the cited portions of the deposition and paragraph five of the draft reply declaration.

Moreover, as Petitioner argues, Patent Owner could have questioned Dr. Turnbull more about the draft reply declaration during the deposition, but did not. Opp. 1–2 (citing Ex. 2027). By failing not to further cross-examine Dr. Turnbull about the draft reply declaration during the deposition, Patent Owner forfeited a timely opportunity to question Dr. Turnbull about

why or how the draft reply declaration materially differs from Petitioner's current position. If Patent Owner had taken the opportunity to seek additional testimony from Dr. Turnbull at deposition on information it now seeks to uncover, the Request could have been obviated. Granting the Request for the full draft reply declaration could at this juncture open the door to reopening discovery, which would impose additional burden on the parties and Board at this late stage in the proceedings.⁵

Based on the foregoing, this factor does not weigh in favor of discovery.

Garmin factor 1 relates to whether there is more than a mere possibility and mere allegation that something useful will be found. *Garmin*, Paper 27 at 6. "The party requesting discovery should already be in possession of evidence tending to show beyond speculation that in fact something useful will be uncovered." *Id.* With the possible exception of paragraph five, Patent Owner points to nothing to show that the draft reply declaration will be useful in supporting its claim construction of "proximal information." *See* Req. 4 (citing Ex. 2027, 9:14–18, testimony relating to paragraph five of the draft reply declaration). In other words, as noted above, Patent Owner argues that an alleged inconsistency centers on Dr. Turnbull's use of the term "associated with" in paragraph five of the draft reply declaration, instead of the term "extracted from" in paragraph five of the Reply Declaration. Req. 2. Patent Owner also points to portions of Dr. Turnbull's deposition to support its theory of an inconsistency in Petitioner's position. *Id.* at 4–5.

⁵ Patent Owner may address paragraph five of the draft reply declaration in the upcoming oral hearing.

Even if Patent Owner is correct that there is an inconsistency already shown in the record, it relates only to paragraph five of the draft reply declaration. Patent Owner's allegations based on this alleged inconsistency essentially reduce to the following theory: 1) the draft reply declaration contradicts the Petition (Paper 1), Dr. Turnbull's Declaration (Ex. 1003), Dr. Turnbull's Reply Declaration, and the Reply (Paper 17) with respect to one claim term, "proximal information"; 2) Petitioner changed its position from what it originally asserted in the Petition and Declarations to what it asserts in the draft reply declaration as to that term; and then, 3) Petitioner changed its position back again to its original "party-line position" by asserting it again in the Reply and Reply Declaration. *See* Paper 17 (Sur-reply), 6 ("Yet, after realizing he relied on and was reading from a draft declaration he prepared for deposition . . . [Dr. Turnbull] *reverted to [Petitioner's] party-line position* that extracted text, without any association with a link, is 'proximal information' Twitter's expert had it right initially." (emphasis added)).

This theory alleging numerous shifts in position by Petitioner amounts to mere speculation. A draft declaration is a preliminary nonfinal version of an expert's opinion, which is generally protected from discovery until filed. *See Stueben Foods*, Paper 52 as 6 (citing cases). There is no more than a mere possibility that the draft reply declaration, with the exception of paragraph five, discusses anything about "proximal information," let alone an alleged inconsistency about that term. It follows that there is no more than a mere possibility based on speculation that other than paragraph five, the draft reply declaration will shed light on the claim construction of

“proximal information,” which Patent Owner stresses is “the heart of a key dispute between the parties.” Req. 5.

Moreover, Petitioner disagrees that there is any inconsistency in its claim construction position in paragraph five of the draft reply declaration or otherwise. *See* Opp. 2 (arguing that “Dr. Turnbull and Petitioner have always taken the position that proximal information includes text associated with the link—and that it includes text extracted from the link” (citations omitted)). Petitioner explains further that “Petitioner and Dr. Turnbull have never asserted that any association must be stored/maintained/tracked.” *Id.* at 3. On the other hand, Petitioner asserts that Patent Owner’s claim construction position is “that the association between the text and the link itself is stored or tracked.” *Id.* (citing PO Resp. § IV.A; Sur-Reply 10–17).

Patent Owner does not dispute Petitioner’s characterization of its claim construction position. *See* Rep. to Opp. 1. Rather, Patent Owner contends that Dr. Turnbull’s “draft based testimony . . . confirms that his draft requires an enduring association” between a link and proximal information. *Id.* (citing Ex. 2027, 9:14–18, 9:22–10:12). However, Petitioner persuasively argues that Dr. Turnbull’s testimony in that cited portion does not support Patent Owner. *See* Opp. 3 (arguing that “Dr. Turnbull’s testimony that ‘proximal information’ ‘would have to be associated with something, whether it’s the link or perhaps even part of a link,’ is consistent,” and “Dr. Turnbull ha[s] never asserted that any association must be stored/maintained/tracked” (citing Ex. 2027, 9:22–10:10)). At this part of the deposition, there is no discussion related to storing, maintaining, or tracking an association, or an enduring association. *See* Ex. 2027, 9:22–10:10. At subsequent parts of the deposition, Patent

Owner cross-examined Dr. Turnbull about the requirements for proximal information, including any associations. *See, e.g.*, Ex. 2027, 16:10–20. However, Patent Owner had the opportunity to directly ask Dr. Turnbull if his draft reply declaration discusses anything related to an enduring association of proximal information, and Patent Owner did not pursue that line of questioning. *See* Ex. 2027.

Accordingly, the Request amounts to seeking to search through the draft reply declaration to attempt to find something useful that Patent Owner could have sought during the cross-examination of Dr. Turnbull. However, nothing Patent Owner points to here indicates that the draft reply declaration has more than a mere possibility of including any information pertaining to tracking or storing an association between the proximal information and link, which is what Patent Owner seeks and is at “the heart of a key dispute between the parties.” *See* Req. 3–5.

After weighing all the *Garmin* factors, we determine that ordering the production of the draft reply declaration is not in the interests of justice, at least with respect to the portions of the declaration other than paragraph five. Accordingly, we deny the Motion as it relates to additional discovery, with the discovery of paragraph five of the draft reply declaration ordered as routine discovery, rendering that aspect moot for purposes of additional discovery.

II. ORDER

Accordingly, it is

ORDERED that Patent Owner’s Request for Discovery is *granted-in-part* and Petitioner shall produce paragraph 5 of the draft reply declaration

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within three business days of this Order in a manner mutually agreed-upon by the parties.

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

X CORP.,
Petitioner

v.

XEROX CORPORATION,
Patent Owner

Case: IPR2021-01398
U.S. Patent No. 7,043,475

PATENT OWNER'S NOTICE OF APPEAL

Mail Stop "PATENT BOARD"
Patent Trial and Appeal Board
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313

Pursuant to 35 U.S.C. §§ 141-142 and 319, 37 C.F.R. §§ 90.2-90.3, Federal Rule of Appellate Procedure 15, and Federal Circuit Rule 15, Patent Owner Xerox Corporation (“Xerox”) hereby provides notice that it appeals to the United States Court of Appeals for the Federal Circuit from the Final Written Decision of the Patent Trial and Appeal Board (the “Board”) entered on March 13, 2023 (Paper 46, “Final Written Decision”), and from all underlying findings, determinations, rulings, opinions, orders, issues, and decisions regarding the *inter partes* review of United States Patent No. 7,043,475 B2 (the “’475 Patent”). This Notice of Appeal and petition for review of the Final Written Decision is timely under 37 C.F.R. § 90.3(a)(1), having been filed within 63 days of the Final Written Decision.

For the limited purpose of providing the Director with the information requested in 37 C.F.R. § 90.2(a)(3)(ii), issues on appeal may include but are not limited to the Board’s factual findings and conclusions of law, the Board’s determinations of the unpatentability of claims and any finding or determination supporting or relating to such determinations of unpatentability including but not limited to claim construction issues, obviousness issues, the scope of the alleged prior art, Board findings that conflict with the evidence of record and are not supported by substantial evidence, as well as all other issues decided adversely to Patent Owner in any orders, decisions, rulings and/or opinions, further including but not limited to: (i) the Board’s interpretation of the alleged prior art; (ii) the

Board's claim constructions; (iii) the Board's determination that claims 1–18 of the '475 Patent were shown to be obvious under 35 U.S.C. § 103(a) and are thus unpatentable; (iv) the Board's legal errors in undertaking its obviousness analysis; (v) the Board's motivation to combine analysis; (vi) the Board's analysis of secondary considerations of nonobviousness; (vii) the Board's findings that conflict with the evidence of record or are otherwise unsupported by substantial evidence; (viii) the Board's failure to consider evidence of record (including testimonial and documentary) fully and properly; (ix) the Board's refusal to order Petitioner to produce an unredacted copy of the document Petitioner's expert testified from during his deposition (Paper 33); and (x) any other findings or determinations supporting or relating to these issues as well as all other issues decided adversely to Patent Owner in any orders, decisions, rulings, or opinions in this proceeding.

Simultaneously with this submission, Patent Owner is filing a true and correct copy of this Notice of Appeal with the Director of the United States Patent and Trademark Office as well as a true and correct copy of the same, along with the required filing fee, with the Clerk of the United States Court of Appeals for the Federal Circuit as set forth in the accompanying Certificate of Filing.

Dated: May 3, 2023

Respectfully submitted,

/s/ James Quigley

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CERTIFICATE OF FILING

The undersigned hereby certifies that, in addition to being electronically filed, a true and correct copy of the above-captioned PATENT OWNER'S NOTICE OF APPEAL is being filed via Priority Mail Express with the Director on May 3, 2023, at the following address:

Director of the United States Patent and Trademark Office
c/o Office of the General Counsel, 10B20
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, Virginia 22313-1450

The undersigned also hereby certifies that a true and correct copy of the above-captioned PATENT OWNER'S NOTICE OF APPEAL and the filing fee is being filed via CM/ECF with the Clerk's Office of the United States Court of Appeals for the Federal Circuit on May 3, 2023.

Dated: May 3, 2023

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CERTIFICATE OF SERVICE

The undersigned hereby certifies that the foregoing PATENT OWNER'S NOTICE OF APPEAL was served via electronic mail on May 3, 2023, in its entirety on the following:

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